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New York (State). State Botanist

THIRTY-FIFTH ANNUAL REPORT of the State Botanist.

1881-1924

ON THE

NEW YORK STATE MUSEUM OF NATURAL HISTORY.

BY THE

REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW YORK.

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IN SENATE,

January 13, 1882.

ANNUAL REPORT

OF THE REGENTS OF THE UNIVERSITY AS TRUSTEES OF THE STATE MUSEUM OF NATURAL HISTORY.

University of the State of New York,
Office of the Regents, Albany, *January* 12, 1882.

To the Hon. George G. Hoskins,
President of the Senate of the State of New York:

Sir — I have the honor herewith to transmit to the Legislature the Annual Report of the Regents of the University as Trustees of the State Museum of Natural History, as required by law.

Very respectfully your obedient servant,
H. R. PIERSON,
Chancellor.

REGENTS OF THE UNIVERSITY.

[EX-OFFICIO TRUSTEES OF THE STATE MUSEUM OF NATURAL HISTORY.]

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GEORGE W. CLINTON, LL. D., *Vice-Chancellor.*

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MR. LEAVENWORTH,
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SCIENTIFIC STAFF.

JAMES HALL, LL. D., *Director.*
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DR. D. N. DE TARR, *in charge of Zoloögical Collections.*
DR. J. W. HALL, *Osteology and Rock Sections.*
JOHN GEBHARD, *Special Assistant.*

REPORT OF THE BOTANIST.

Hon. David Murray, LL. D.,
Secretary of the Board of Regents of the University:

Sir — Since the date of my last report, specimens of two hundred and forty-eight species of plants have been mounted and placed in the State Herbarium, of which ninety-four species were previously unrepresented therein. The others represent species by improved specimens, or are forms or varieties not before represented. A list of the names is marked (1).

During the past season specimens have been collected in the counties of Albany, Greene, Putnam and Rensselaer. These represent one hundred and fifteen species, of which sixty-seven are new to the State and to the Herbarium, and forty are believed to be unpublished. A list of the names of the collected specimens is marked (2).

Among the contributed specimens, only one collected in the State proves to be new to our flora. A list of the names of contributors and their contributions is marked (3).

A record of the species now added to our flora and of the descriptions of such as are yet unpublished is marked (4).

A part of the report containing remarks and observations upon various species and a list of the New York Carices at present known is marked (5).

In pursuance of the plan introduced in the Thirty-third Report, in reference to the subgenus Amanita, and for the reasons therein stated, descriptions of all the hitherto known New York species of Agarics belonging to the subgenus Lepiota have been drawn up, and, in many instances, made more complete by the addition of the dimensions and character of the spores. Full remarks concerning the peculiarities, variations and distinctive features of each species are added to its description, and important characters are italicized. A synoptical table is introduced, which is intended to aid in tracing any given species to its name. This monograph of our Lepiotæ is marked (6).

A table case has been filled with specimens of earth-stars (Geaster), puff-balls (Lycoperdon and Bovista) and sap-balls (Polyporus) placed in paper trays. All of our fleshy and tough or corky species of fungi ought to be exhibited in this manner. Many are too bulky to be mounted entire in the usual manner, and many are in better condition for study and recognition if preserved in their natural shape than if pressed and mounted on herbarium sheets and stacked away in cabinets.

(1.)

PLANTS MOUNTED.

Species not new to the Herbarium.

Clematis verticillaris, *DC.*
Thalictrum anemonoides, *Mx.*
Ranunculus Pennsylvanicus, *L.*
Nymphæa odorata, *Ait.*
Nuphar advena, *Ait.*
N. Kalmiana, *Ait.*
Cardamine hirsuta, *L.*
Sisymbrium officinale, *Scop.*
Raphanus sativus, *L.*
Lepidium ruderale, *L.*
Malva rotundifolia, *L.*
Vitis æstivalis, *Mx.*
Acer Pennsylvanicum, *L.*
Robinia viscosa. *Vent.*
Rubus odoratus, *L.*
R. villosus, *Ait.*
Rosa Carolina, *L.*
R. lucida, *Ehrh.*
Ribes hirtellum, *Mx.*
R. prostratum, *L'Her.*
Epilobium angustifolium, *L.*
E. coloratum, *Muhl.*
Aralia hispida, *Mx.*
Sambucus pubens, *Mx.*
Viburnum nudum, *L.*
Galium verum, *L.*
Aster corymbosus, *Ait.*
A. cordifolius, *L.*
A. multiflorus, *Ait.*
A. Tradescanti, *L.*
A. longifolius, *Lam.*
A. puniceus, *L.*
Solidago latifolia, *L.*
S. stricta, *Ait.*
S. serotina, *Ait.*
Bidens connata, *Muhl.*
B. cernua, *L.*
Artemisia Canadensis, *Mx.*
Lactuca Canadensis, *L.*
Campanula rotundifolia, *L.*
Plantago major, *L.*
Verbascum Blattaria, *L.*
Mimulus ringens, *L.*
Mentha Canadensis, *L.*
M. piperita, *L.*
Lycopus Virginicus, *L.*
Origanum vulgare, *L.*
Scutellaria lateriflora, *L.*
Echium vulgare, *L.*
Chenopodium album, *L.*
Polygonum amphibium, *L.*
Euphorbia maculata, *L.*
E. hypericifolia, *L.*
Urtica gracilis, *Ait.*
Humulus Lupulus, *L.*
Juglans nigra, *L.*
Taxus Canadensis, *Willd.*
Sparganium simplex, *Huds.*
Potamogeton Oakesianus, *Robbins.*
P. Claytonii, *Tuckm.*
P. amplifolius, *Tuckm.*
P. gramineus, *L.*
P. lucens, *L.*
P. pusillus, *L.*
Sagittaria variabilis, *Engel.*
Trillium erectum, *L.*
Lilium Philadelphicum, *L.*
Juncus tenuis, *Willd.*
J. marginatus, *Rost.*
Carex lagopodioides, *Schk.*
C. cristata, *Schw.*
C. mirabilis, *Dew.*
C. scoparia, *Schk.*
C. straminea, *Schk.*
C. tenera, *Dew.*
C. stipata, *Muhl.*
C. sparganioides, *Muhl.*
C. sterilis, *Willd.*
C. gynandra, *Schw.*
C. gracillima, *Schw.*
C. formosa, *Dew.*
C. conoidea, *Schk.*
C. virescens, *Muhl.*
C. triceps, *Mx.*
C. laxiflora, *Lam.*
C. arctata, *Boott.*

Carex debilis, *Mx.*
C. flava, *L.*
C. tentaculata, *Muhl.*
C. oligosperma, *Mx.*
Leersia Virginica, *Willd.*
L. oryzoides, *Sw.*
Agrostis scabra, *Willd.*
A. perennans, *Tuckm.*
A. vulgaris, *With.*
A. alba, *L.*
Muhlenbergia sylvatica, *T. and G.*
M. Mexicana, *Trin.*
Spartina cynosuroides, *Willd.*
Dactylis glomerata, *L.*
Phleum pratense, *L.*
Festuca elatior, *L.*
F. nutans, *Willd.*
Poa alsodes, *Gr.*
P. serotina, *Ehrh.*
P. pratensis, *L.*
Glyceria acutiflora, *Torr.*
G. fluitans, *R. Br.*
G. Canadensis. *Trin.*
G. pallida, *Trin.*
G. nervata, *Trin.*
Eatonia obtusata, *Gr.*
E. Pennsylvanica, *Gr.*
Panicum agrostoides, *Spreng.*
P. depauperatum. *Muhl.*
P. dichotomum, *L.*
P. Crus-galli, *L.*
Phalaris arundinacea, *L.*
Anthoxanthum odoratum, *L.*
Elymus Virginicus, *L.*
Elymus Canadensis, *L.*
Triticum violaceum, *Hornem.*
T. repens, *L.*
Setaria viridis, *Beauv.*
Phegopteris polypodioides, *Fee.*
P. hexagonoptera, *Fee.*
Aspidium Noveboracense, *Sw.*
A. aculeatum, *Sw.*
Pteris aquilina, *L.*
Equisetum sylvaticum, *L.*
E. limosum. *L.*
Bartramia Marchica, *Brid.*
Coprinus micaceus, *Fr.*
Stereum rugosum, *Fr.*
S. sanguinolentum, *Fr.*
Polyporus pubescens, *Fr.*
P. pergamenus, *Fr.*
P. ferruginosus, *Fr*
Hydnum alutaceum, *Pers.*
Tremella sarcoides, *Sm.*
Ptychogaster albus, *Cd.*
Septoria Rhoidis, *B. and C.*
S. Rubi, *B. and C.*
Haplographium apiculatum, *Pk.*
Ramularia obovata, *Fckl.*
Trichoderma viride, *Pers.*
Sphærotheca Castagnei, *Lev.*
Erysiphe lamprocarpa, *Lev.*
Stictis versicolor, *Fr.*
Xylaria digitata, *Grev.*
Hypoxylon multiforme, *Fr.*
Eutypa spinosa, *Tul.*
Sphæria Coryli, *Batsch.*
S. callista, *B. and R.*

Species new to the Herbarium.

Triosteum angustifolium, *L.*
Carum Carui, *L.*
Coreopsis discoidea, *T. and G.*
Lamium maculatum, *L.*
Potamogeton rufescens, *Schrad.*
Eleocharis quadrangulata, *Br.*
Carex adusta, *Boott.*
C. glaucodea, *Tuckm.*
C. Sullivantii, *Boott.*
Polypogon Monspeliensis, *Desf.*
Zea Mays, *L.*
Nitella opaca, *Ag.*
N. intermedia, *Nordst.*
Agaricus spectabilis, *Fr.*
A. ornellus, *Pk.*
Hygrophorus limacinus, *Fr.*
Polyporus hypococcinus, *Berk.*
P. undosus, *Pk.*
P. semipileatus, *Pk.*
Irpex viticola, *C. and P.*
Grandinia crustosa, *Fr.*
Pterula densissima, *B. and C.*
Tremella epigæa, *B. and Br.*
T. subochracea, *Pk.*
Hymenula vulgaris, *Fr.*
Geaster mammosus, *Chev.*
Arcyria macrospora, *Pk.*
Cribraria dictydioides, *C. and B.*
Hendersonia Cydoniæ, *C. and E.*
Phyllosticta Grossulariæ, *Sacc.*
P. Nesææ, *Pk.*
Septoria Galeopsidis, *West.*
S. Hydrocotyles, *Desm.*
S. Violæ, *West.*
S. Cucurbitacearum, *Sacc.*
S. corylina, *Pk.*
S. betulicola, *Pk.*
S. microsperma, *Pk.*
S. Pileæ, *Thum.*
Septoglœum Apocyni, *Pk.*
Vermicularia circinans, *Berk.*
Morthiera Thumenii, *Cke.*
Pestalozzia Stevensonii, *Pk.*
Puccinia Thalictri, *Chev.*

Puccinia Cirsii, *Lasch.*
P. simplex, *Pk.*
Protomyces polysporus, *Pk.*
Æcidium pedatatum, *Schw.*
Helicomyces mirabilis, *Pk.*
Septocylindrium Ranunculi, *Pk.*
Ramularia Spirææ, *Pk.*
R. rufomaculans, *Pk.*
R. sambucina, *Pk.*
R. Impatientis, *Pk.*
R. Rudbeckii, *Pk.*
Cercosporella reticulata, *Pk.*
Cercospora depazeoides, *Sacc.*
C. beticola, *Sacc.*
C. Violæ, *Sacc.*
C. Bœhmeriæ, *Pk.*
C. Acalyphæ, *Pk.*
C. graphioides, *Ell.*
C. clavata, *Ger.*
Verticillium candidum, *Pk.*
Diplocladium minus, *Bon.*
Fusisporium tenuissimum, *Pk.*
Aspergillus phæocephalus, *D. and M.*
A. clavellus, *Pk*
Monilia Harknessii, *Pk.*
Ellisiella caudata, *Sacc.*
Sporocybe nigriceps, *Pk.*
Periconia sphærophila, *Pk.*
Graphium gracile, *Pk.*
Macrosporium concinnum, *Berk.*
Helminthosporium Tiliæ, *Fr.*
H. septemseptatum, *Pk.*
H. inconspicuum, *C. and E.*
H. arbusculoides, *Pk.*
Zygodesmus bicolor, *C. and E.*
Rhinotrichum subalutaceum, *Pk.*
Zasmidium cellare, *Pers.*
Peziza hydrophila, *Pk.*
P. atrata, *Fr.*
P. fusarioides, *Berk.*
P. aurelia, *Pers.*
P. balsamicola, *Pk.*
Meliola balsamicola, *Pk.*
Hypoxylon marginatum, *Schw.*
Diatrype punctulata, *B. and R.*
Diatrypella angulata, *Fr.*
Valsa myinda, *C. and E.*
Dothidea melanoplaca, *Desm.*
Lophiostoma angustilabrum, *B. and Br.*
Sphærella Leersiæ, *Pass.*

(2.)

PLANTS COLLECTED.

Not new to the Herbarium.

Ranunculus abortivus, *L.*
Brassica arvensis, *L.*
Viola Selkirkii, *Pursh.*
Acer Pennsylvanicum, *L.*
Trifolium repens, *L.*
Rubus triflorus, *Richardson.*
Tiarella cordifolia, *L.*
Heracleum lanatum, *Mx.*
Tanacetum vulgare, *L.*
Vaccinium corymbosum, *L.*
V. Pennsylvanicum, *Lam.*
Scutellaria galericulata, *L.*
Marrubium vulgare, *L.*
Polygonum orientale, *L.*
Fraxinus pubescens, *Lam.*
F. sambucifola, *Lam.*
Quercus alba, *L.*
Q. coccinea, *Wang.*
Q. tinctoria, *Bart.*
Q. rubra, *L.*
Carya amara, *Nutt.*
Potamogeton gramineus, *L.*
P. pusillus, *L.*
P. pectinatus, *L.*
Polygonatum giganteum, *Diet.*
Uvularia sessilifolia, *L.*
Carex vulpinoidea, *Mx.*
C. cephalophora, *Muhl.*
C. Muhlenbergii, *Schk.*
C. lagopodioides, *Schk.*
C. cristata, *Schw.*
C. mirabilis, *Dew.*
C. adusta, *Boott.*
C. stricta, *Lam.*
C. granularis, *Muhl.*
C. gracillima, *Schw.*
C. virescens, *Muhl.*
C. plantaginea, *Lam.*
C. laxiflora, *Lam.*
C. Emmonsii, *Dew.*
C. Pennsylvanica, *Lam.*
Zizania aquatica, *L.*
Stipa avenacea, *L.*
Bromus racemosus, *L.*
Poa trivialis, *L.*
Aira flexuosa, *L.*
Osmunda cinnamomea, *L.*
Aspidium Boottii, *Tuckm.*

New to the Herbarium.

Agaricus alluviinus, *Pk.*
A. rubrotinctus, *Pk.*
A. albus, *Schæff.*
A. stellatus, *Fr.*
A. pascuus, *Pers.*
A. sinuatus, *Fr.*
A. fastibilis, *Fr.*
A. alnicola, *Fr.*
A. sulcatipes, *Pk.*
A. hærens, *Pk.*
A. tiliophilus, *Pk.*
A. nitidipes, *Pk.*
A. epimyces, *Pk.*
Hygrophorus fuligineus, *Frost.*
H. flavodiscus, *Frost.*
Russula heterophylla, *Fr.*
Marasmius salignus, *Pk.*
Polyporus immitis, *Pk.*
P. fraxinophilus, *Pk.*
Irpex crassus, *B. and C.*
I. mollis, *B. and C.*
Corticium effuscatum, *C. and E.*
Thelephora rosella, *Pk.*
Clavaria pinophila, *Pk.*
Cyphella læta, *Fr.*
Phoma cucurbitale, *B. and C.*
Sphæropsis Caryæ, *C. and E.*
Discella hysteriella, *Pk.*
D. albomaculans, *Pk.*
Glœosporium fraxinea, *Pk.*
Septoria cannabina, *Pk.*
S. Sicyi, *Pk.*
S. Calystegiæ, *Sacc.*
S. Cirsii, *Niessl.*
Septoria musiva, *Pk.*
Phyllosticta Cratægi, *Pk.*
P. variabilis, *Pk.*
Protomyces macrosporus, *Ung.*
Ustilago pallida, *Schrœt.*
Acalyptospora Populi, *Pk.*
Macrosporium transversum, *Pk.*
Alternaria tenuis, *Nees.*
Ellisiella caudata, *Sacc.*
Botrytis ceratioides, *Pk.*
Dactylium dendroides, *Fr.*
Verticillium Lactarii, *Pk.*
Cercospora Tiliæ, *Pk.*
C. Lepidii, *Pk.*
C. Daturæ, *Pk.*
C. longispora, *Pk.*
C. varia, *Pk.*
Ramularia Ranunculi, *Pk.*
R. Vaccinii, *Pk.*
R. Hamamelidis, *Pk.*
R. aquatilis, *Pk.*
Asterophora Pezizæ, *Cd.*
Peziza lætirubra, *Che.*
P. singularia, *Pk.*
Tympanis Nemopanthis, *Pk.*
Cenangium betulinum, *Pk.*
Triblidium clavæsporum, *Pk.*
Ascomyces deformans, *Berk.*
Gymnascella aurantiaca, *Pk.*
Valsa tomentella, *Pk.*
Sphæria petiolophila, *Pk.*
Sphærella fraxinea, *Pk.*
Venturia curviseta, *Pk.*

(3.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. S. M. Rust, Syracuse, N. Y.

Potamogton crispus, *L.*
Geranium maculatum, *L.*
Smilax hispida, *Muhl.*

Mary E. Banning, Baltimore, Md.

Pachyma Cocos, *Fr.*

Lizzie G. Barnett, Cannonsburg, Pa.

Secotium Warnei, *Pk.*

Eloise Butler, Minneapolis, Minn.

Secotium Warnei, *Pk.*

W. R. Gerard, New York, N. Y.

Æcidium Rusbyi, *Ger.*
Polyporus arcularius, *Fr.*

J. B. Ellis, Newfield, N. J.

Corticium effuscatum, *C. and E.*
Rostafinskia australis, *Speg.*
Lycoperdon constellatum, *Fr.*
Puccinia Mikaniæ, *Speg.*
Graphium verticillatum, *Speg.*

C. J. Sprague, Boston, Mass.

Lecidea vescicularis *Hoffm.*
Biatora globifera, *Ach.*

S. H. Wright, M. D., Penn Yan, N. Y.

Æcidium Asperifolii, *Pers.*
Æ. Falcarii, *D. C.*
Puccinia coronata, *Cd.*
Erysiphe Montagnei, *Lev.*
Polythrincium Trifolii, *Cd.*
Peronospora Schachtii, *Fckl.*

E. C. Howe, M. D., Yonkers, N. Y.

Eragrostis pilosa, *Beauv.*
E. Purshii, *Schrad.*
Carex Muhlenbergii v. enervis, *Boott.*

M. F. Merchant, M. D., Moravia, N. Y.

Mitchella repens, *L.*

H. W. Barnum, Valley Falls, N. Y.

Trillium grandiflorum, *Salisb.*

Prof. C. E. Bessey, Ames, Iowa.

Secotium Warnei, *Pk.*

C. W. Irish, Iowa City, Iowa.

Polyporus fraxinophilus, *Pk.*
Trametes Peckii, *Kalchb.*

I. Cowles, Flushing, N. Y.

Opuntia Rafinesquii, *Engelm.*

J. L. Bennett, Providence, R. I.

Carex cristata *Schw.*
C. aurea, *Nutt.*
C. miliaris, *Mx.*
C. microdonta, *Torr.*
C. panicea, *L.*
C. vividula, *Mx.*
C. festiva, *Dew.*
C. sycnocephala, *Carey.*
C. athrostachya, *Olney.*
C. scoparia, *Schk.*
C. lagopodioides, *Schk.*
C. festucacea, *Schk.*
C. straminea, *Schk.*
C. Haleana, *Olney.*
C. alata, *Torr.*
C. Bonplandii, *Kunth.*
C. torta, *Boott.*
C. crinita, *Lam.*
C. pallescens, *L.*
C. flaccosperma, *Dew.*
C. grisea, *Wahl.*
C. virescens, *Muhl.*
C. gynocrates, *Wormsk.*
C. capitata, *L.*
C. nigricans, *Mey.*
C. pauciflora, *Lightf.*
C. filifolia, *Nutt.*
C. polytrichoides, *Muhl.*
C. Muhlenbergii, *Schk.*
Carex conjuncta, *Boott.*
C. alopecoidea, *Tuckm.*
C. rosea, *Schk.*
C. stipata, *Muhl.*
C. sparganioides, *Muhl.*
C. cephaloidea, *Boott.*
C. cephalophora, *Muhl.*
C. bicostata, *Olney.*
C. vulpinoidea, *Mx.*
C. Kunzei, *Olney.*
C. Gayana, *Desu.*
C. teretiuscula,
C. prairea, *Dew.*
C. siccata, *Dew.*
C. disticha, *Huds.*
C. bromoides, *Schk.*
C. stenophylla, *Wahl.*
C. Douglassii, *Boott.*
C. chordorhiza, *Ehrh.*
C. tenella, *Schk.*
C. canescens, *L.*
C. vitilis, *Fr.*
C. tenuiflora, *Wahl.*
C. trisperma, *Dew.*
C. Deweyana, *Schw.*
C. albolutescens, *Schw.*
C. maritima, *Mull.*
C. aquatilis, *Wahl.*
C. lenticularis, *Mx.*

Carex aperta, *Boott.*
C. rigida, *Good.*
C. limosa, *L.*
C. Buxbaumii, *Wahl.*
C. Steudellii, *Kunth.*
C. atrata, *L.*
C. nigra, *Alli.*
C. Willdenovii, *Schk.*
C. Backii, *Boott.*
C. Geyeri, *Boott.*
C. longirostris, *Torr*
C. amplifolia, *Boott.*
C. Fraseriana, *Sims.*
C. retroflexa, *Muhl.*
C. stellulata, *Good.*
C. Davisii, *S. & T.*
C. gracillima, *Schw.*
C. triceps, *Mx.*
C. plantaginea, *Lam.*
C. Careyana, *Torr.*
C. platyphylla, *Carey.*
C. retrocurva, *Dew.*
C. laxiflora, *Lam.*
C. eburnea, *Boott.*
C. umbellata, *Schk.*
C. Emmonsii, *Dew.*
C. nigromarginata, *Schw.*
C. Pennsylvanica, *Lam.*
C. varia, *Muhl*
C. Richardsonii, *R. Br.*
C. pubescens, *Muhl.*

Carex miliacea, *Muhl.*
C. arctata, *Mx.*
C. debilis, *Mx.*
C. filiformis, *L.*
C. striata, *Mx.*
C. trichocarpa, *Muhl.*
C. Pseudo-Cyperus, *L.*
C. hystricina, *Willd.*
C. intumescens, *Rudge.*
C. Grayii, *Carey.*
C. lupulina, *Muhl.*
C. subulata, *Mx.*
C. squarrosa, *L.*
C. retrorsa, *Schw.*
C. Schweinitzii, *Dew.*
C. utriculata, *Boott.*
C. monile, *Tuckm.*
C. pulla, *Mx.*
C. Whitneyi, *Olney.*
C. Tuckermani, *Boott.*
C. Olneyi, *Boott.*
C. Raynoldii, *Dew.*
C. podocarpa, *R. Br.*
C. fœtida, *All.*
C. Rossii, *Boott.*
C. Halleriana, *Asso.*
C. Cherokeensis, *Schw.*
C. debilis, *Mx.*
C. oxylepis, *Torr.*
C. Boottiana, *Benth.*

(4.)

SPECIES NOT BEFORE REPORTED.

ERAGROSTIS PURSHII, *Schrad.*

Waste places about Yonkers. *E. C. Howe.*

AGARICUS METULÆSPORUS, *B. and Br.*

Woods. Adirondack mountains. August and September.

AGARICUS ALLUVIINUS, *Pk.*

Alluvial soil, among weeds. Albany. July.

AGARICUS RUBROTINCTUS, *Pk.*

Thin woods and open places. July—September.

For the description of this and the two species next preceding, see the synopsis of the subgenus Lepiota in the closing pages of this report.

AGARICUS ALBUS, *Schæff.*

Woods. East Berne, Albany county. August.

AGARICUS STELLATUS, *Fr.*

Decaying prostrate trunks of trees in woods. East Berne. August.

Agaricus pascuus, *Pers.*

Woods. East Berne. August. Sometimes the freshly broken plant has a slight odor of meal.

Agaricus sinuatus, *Fr.*

Woods. East Berne. August.

Agaricus fastibilis, *Fr.*

Thin woods. Albany. October. The plant here noticed is a white variety, approaching var. *alba,* but with a short stem. The spores are almost ochraceous. The drops of moisture on the lamellæ at length dry up and leave brownish stains or granules resembling those on the stem and tubes of *Boletus granulatus.*

Agaricus alnicola, *Fr.*

In low swampy woods about the base of alders. Sandlake. October.

Agaricus (Galera) sulcatipes, *n. sp.*

Pileus thin, ovate, then conical or subcampanulate, hygrophanous, chestnut-colored and generally striatulate on the margin when moist, becoming paler when dry; lamellæ ascending, subdistant, adnate, whitish, becoming ferruginous-cinnamon, stem slender, straight or flexuous, equal, hollow, rather tenacious, striate-sulcate, silky, floccose-pruinose toward the base, white, often tinged with blue or green at the base; spores elliptical, ferruginous-cinnamon, ·00025′—·0003′ long, ·00016′ broad.

Plant gregarious, 1·5′—3′ high, pileus 5″—8″ broad, stem 1″ thick.

Woods. East Berne. August.

The plants were found growing on a bed of buckwheat bran. The stem is white and almost shining; striate and silky above, and pulverulent or floccose-pruinose at the base, where it generally assumes a greenish-blue color if handled when moist. When dry the stem is distinctly furrowed. The pileus fades in drying to subochraceous or subalutaceous. The lamellæ are sometimes white on the edge.

Agaricus (Crepidotus) hærens, *n. sp.*

Pileus convex, sessile, cuneiform or dimidiate, glabrous, hygrophanous, viscid and striatulate on the margin when moist, white or whitish when dry; lamellæ moderately close, narrow, tapering toward each end, subcinereous, then brownish; spores elliptical, pale-ferruginous, ·0003′ long, ·0002′ broad.

Pileus 4″—12″ long and broad.

Decaying wood. Albany. September.

The elliptical spores and viscid pileus are distinguishing characters in this species. The pileus is often stained by the spores and it then has a sordid or squalid appearance. When not so stained it is very white if dry, watery-white if moist. The margin is very thin. The lamellæ are dingy, when young, and they become darker with age. The stem is wanting or merely rudimentary. The pileus is attached by white filaments.

AGARICUS (CREPIDOTUS) TILIOPHILUS, *n. sp.*

Pileus rather thin, convex, minutely pulverulent or subglabrous, hygrophanous, watery-brown and striatulate on the margin when moist, dingy buff-color when dry; lamellæ rather broad, subdistant, rounded behind, adnexed, colored like the pileus, becoming ferruginous-cinnamon; stem very short, often curved, solid, eccentric, whitish, pruinose, with a white pubescence at the base; spores ovate or subelliptical, brownish-ferruginous, ·0002′—·00025′ long, ·00016′—·00018′ broad.

Pileus 6″—12″ broad, stem 2″—4″ long, 1″ thick.

Dead trunks and branches of basswood, *Tilia Americana.* East Berne. August.

Sometimes the plants are so closely crowded that they appear cæspitose.

AGARICUS (HYPHOLOMA) NITIDIPES, *n. sp.*

Pileus fleshy, firm, convex, glabrous or obscurely fibrillose, whitish or yellowish; lamellæ close, adnexed, whitish or subcinereous, becoming rosy-brown, generally white on the edge; stem equal or slightly thickened at the base, solid, silky, shining, whitish; spores ovate, rosy-brown, ·0002′—·00025′ long, ·00016′—·00018′ broad.

Plant 2′—4′ high, pileus 2′—3′ broad, stem 3″—4″ thick.

Damp, shaded ground. Albany. September.

Externally this species resembles *A. præcox,* from which its solid stem and smaller spores at once distinguish it.

AGARICUS (PANÆOLUS) EPIMYCES, *n. sp.*

Pileus fleshy, at first subglobose, then convex, white, silky-fibrillose, flesh soft, white or whitish; lamellæ rather broad, somewhat close, rounded behind, adnexed, dingy-white, becoming brown or blackish, with a white edge; stem short, stout, tapering upwards, strongly striate and minutely mealy or pruinose, solid in the young plant, hollow in the mature plant, but with the cavity small, hairy or substrigose at the base; spores elliptical, black, ·0003′—·00035′ long, ·0002′—·00025′ broad.

Plant 1′—1·5′ high, pileus 8″—12″ broad, stem 3″—4″ thick.

Parasitic on fungi. North Greenbush. November.

This singular species is referred to the subgenus Panæolus because of its black spores. Its thick, fleshy stem and pileus do not well accord with the character of these parts in the other species of this subgenus, and, notwithstanding the color of the spores, it may seem best to some to refer the species to the subgenus Hypholoma. *A. Loveianus*, *A. alumnus*, *A. cirrhatus*, *A. tuberosus*, *A. racemosus* and *A. pilipes* are other species of Agarics which are parasitic on putrid fungi. The species of Nyctalis also have a similar habitat.

Hygrophorus fuligineus, *Frost MS.*

Pileus convex or plane, smooth, glutinous, fuscous or smoky-brown, the disk usually darker or almost black, the margin sometimes wavy or irregular, and in old specimens often reflexed, flesh white; lamellæ moderately broad, adnate or decurrent, subdistant, white, the interspaces often veiny; stem variable, long or short, equal or ventricose, sometimes attenuated at the base, solid, glutinous, white, sometimes slightly stained with smoky-brown; spores elliptical, ·0003′—·00035′ long, ·0002′ broad.

Plant 2′—4′ high, pileus 1′—4′ broad, stem 4″—10″ thick.

Pine woods. West Albany. November.

The abundant gluten which covers the pileus gives it when dry a shining appearance, as if varnished. There is a short space at the top of the stem which is free from gluten, slightly silky and very white. The plant grows either singly or in tufts of three or four individuals.

Hygrophorus flavodiscus, *Frost MS.*

Pileus convex or plane, smooth, glutinous, white, with a pale-yellow or reddish-yellow disk, flesh white; lamellæ adnate or decurrent, subdistant, white, sometimes with a slight flesh-colored tint, the interspaces sometimes veiny; stem subequal, solid, glutinous, white, sometimes slightly stained with yellow; spores elliptical, ·00025′—·0003′ long, ·00016′ broad.

Plant 2′—3′ high, pileus 1′—3′ broad, stem 2″—8″ thick.

Pine woods. West Albany. November.

The late Mr. C. C. Frost sent me manuscript descriptions of a few species of fungi which he had found in Vermont and regarded as new species. Among them are descriptions of the two species of Hygrophorus now found for the first time within our limits. I have adopted the names given by Mr. Frost, but have remodeled his descriptions and extended them so as to include the character and dimensions of the spores. Both species were found growing together, and but for the marked difference in the coloration of the pileus both might readily be taken for forms of one species.

This, like the preceding one, has a short white space at the top of the stem, free from the viscidity that exists elsewhere. It resembles in many respects *Hygrophorus speciosus*, which has the pileus red, fading to yellow with advancing age. Perhaps the three may yet prove to be forms of one very variable species, for the most conspicuous differences between them consist in the colors of the pileus. The constancy with which the three styles of coloration has thus far been maintained indicates a specific difference, but color alone is not generally regarded as having any specific value.

RUSSULA HETEROPHYLLA, *Fr.*

Woods. East Berne. August.

MARASMIUS SALIGNUS, *n. sp.*

Pileus submembranous, convex or plane, without striæ, dry, glabrous or subpruinose, whitish; lamellæ rather narrow, adnate, subdistant, whitish, sometimes united behind in pairs, occasionally branched; stem short, slender, stuffed, reddish-brown, slightly mealy or pruinose, inserted; spores ovate or subelliptical, pointed at one end, ·00025′—·00032′ long, 00016′ broad.

Plant 6″—10″ high, pileus 2″—5‴ broad, stem scarcely half a line thick.

Bark of living willow trees. Bethlehem. September.

This species is closely related to *M. ramealis*, but in that species the pileus, according to the description, is rufescent either wholly or on the disk, and the stem is white; in our species the pileus is white or whitish and the stem is reddish-brown. Only in young specimens is the stem white and then only at the apex. Sometimes there is a slight depression or umbilicus in the center of the pileus.

POLYPORUS (MERISMA) IMMITIS, *n. sp.*

Pilei cæspitose-imbricated, broad, slightly convex or flattened, more or less rough or uneven, radiate-rugose, tuberculose or fibrous-hispid, zoneless, white, becoming tinged with yellow or alutaceous in drying, flesh white, slightly fibrous, soft and moist when fresh, cheesy when dry, with a subacid odor; pores minute angular or even subflexuous, about equal in length to the thickness of the pileus, the dissepiments thin, white, often at length dentate or lacerate on the edge; spores minute, white, elliptical, ·00012′—·00016′ long, ·00007′—·00008′ broad.

Pilei 2′—4′ broad, the flesh commonly 3″—4″ thick.

Decaying ash trunks. East Berne. August.

The species is apparently related to *P. cæsareus*, but the character of the pores is quite different in the two species.

POLYPORUS (PLACODERMEI) FRAXINOPHILUS, *Pk.*

Pileus sessile, thick, corky, subtriquetrous, narrow, somewhat decurrent behind, the first year whitish, with a minute whitish tomentum or hairiness, then gray, finally blackish, in old specimens concentrically sulcate, rimose, the substance within obscurely zoned, at first whitish, then isabelline or pale-tawny, the margin obtuse; pores stratose, plane or subconvex, small, nearly equal, subrotund, the dissepiments obtuse, entire, whitish: spores white, broadly elliptical, ·0003′—·00035′ long, ·00025′—·0003′ broad.

Pileus 2′—4′ long, 1′—1·5′ broad.

Trunks and branches of dead or languishing ash trees. Coeymans, Albany county. May and September.

The species belongs to the tribe *Fomentarii*, and is related by its whitish pores and surface to *P. connatus*, but its colored substance and larger pores will easily distinguish it from that species.

IRPEX CRASSUS, *B. and C.*

Oak stumps. North Greenbush. October.

IRPEX MOLLIS, *B. and C.*

Decaying wood. Helderberg mountains. October.

The teeth in this species are sometimes compressed in such a manner that they appear like radiating lamellæ broken up into narrow segments. They have a coarse stout appearance even when most of them are subulate. The pileus is whitish and moist when fresh. A resupinate form occurs, both of this species and of *I. lacteus*.

CORTICIUM EFFUSCATUM, *C. and E.*

Dead branches. East Berne. August.

THELEPHORA ROSELLA, *n. sp.*

Very small, tufted, rosette-like, variously laciniate, dentate or subfimbriate on the margins, whitish or subincarnate, developing from a blackish tubercle; spores minute, narrowly elliptical or sublanceolate, ·0002′—·00025′ long, scarcely half as wide.

Dead branches of alder, *Alnus incana*. Sandlake. July.

This is a very singular species, and may prove to be an imperfect condition of some fungus quite unlike this one.

CLAVARIA PINOPHILA, *n. sp.*

Stems short, more or less tufted, much branched: branches crowded, often compressed above and subdigitately divided, pale-ochraceous, ultimate ramuli rather long, subulate, white; spores oblong or sublanceolate, ·0004′—·0005′ long, ·00016 broad.

Thin woods under pine trees. East Berne. August.

The tufts are about one inch high. The spores appear white when caught on brown paper.

Cyphella læta, *Fr.*

Dead stems of herbs lying on the ground. East Berne. August. The beautiful sulphur color is lost in drying.

Phoma cucurbitale, *B. and C.*

Old squashes. Sandlake. July.

Sphæropsis Caryæ, *C. and E.*

Dead bark of hickory trees, *Carya alba*. West Troy. May.

The perithecia do not always grow in lines, but are frequently arranged in an irregular manner.

Discella hysteriella, *n. sp.*

Perithecia hysteriiform, nestling in the fibres of the wood, opening by a longitudinal chink or a wide elliptical aperture, black; spores numerous, oblong, obtuse at each end, colorless, obscurely uniseptate, ·0003′—·0004′ long, ·00012′—·00015′ broad.

Decorticated wood. North Greenbush. Autumn and Spring.

Discella albomaculans, *n. sp.*

Perithecia punctiform, hemispherical, prominent, gregarious on an indefinite whitish spot, black, opening by a simple irregular or triradiate aperture; spores abundant, oblong, colorless, obscurely uniseptate, ·0004′—·0005′ long, ·00012′ broad.

Dead twigs of grape-vines. Helderberg mountains. May.

Related to, but distinct from, the preceding by its perithecia, narrower and longer spores and by its forming a whitish spot on the matrix.

Glœosporium fraxinea, *n. sp.*

Spots numerous, small, pale-red with a darker or purplish-red border and usually with a minute whitish center, nuclei few; spores oblong-elliptical, colorless, ·0002′—·00025′ long, ·00016′ broad, sometimes with a minute nucleus at each end.

Living leaves of ash, *Fraxinus pubescens*. Albany. June.

Septoria cannabina, *n. sp.*

Spots suborbicular, small, unequal, cinereous, often with a reddish-brown border; perithecia minute, numerous, epiphyllous, central on the spot, blackish; spores filiform, colorless, curved, ·0008′—·0012′ long.

Living leaves of hemp, *Cannabis sativa*. Cold Spring. June.

Septoria Sicyi, *n. sp.*

Spots small, suborbicular, scattered or rarely subconfluent, whitish or cinereous, arid; perithecia few, epiphyllous, blackish; spores filiform, straight or curved, colorless, ·0016′—·0024′ long.

Living leaves of *Sicyos angulatus*. Albany. June.

Septoria Calystegiæ, *Sacc.*

Living leaves of *Calystegia Sepium*. Albany. June.

SEPTORIA CIRSII, *Niessl.*

Living leaves of Canada thistle, *Cirsium arvense.* West Albany. June.

SEPTORIA MUSIVA, *n. sp.*

Spots small, numerous, angular, brown, usually obscurely mottled by minute angular patches of paler color; perithecia few, epiphyllous, depressed, black or blackish; spores cylindrical, slightly curved, colorless, sometimes obscurely triseptate, ·0012′—·0018′ long.

Living leaves of cottonwood, *Populus monilifera.* Albany. July.

This species differs from *S. Populi,* Desm., in the character of the spots which are variegated like mosaic work, and in the septation of the spores.

PHYLLOSTICTA CRATÆGI, *n. sp.*

Spots small, angular or irregular, sometimes confluent, red; perithecia one to five on a spot, epiphyllous, minute, black; spores broadly elliptical or subglobose, colorless, ·0003′ long, ·00025′ broad.

Living leaves of thorn bushes, *Cratægus tomentosa.* Albany. July.

PHYLLOSTICTA VARIABILIS, *n. sp.*

Spots small or large, suborbicular or irregular, brown or reddish-brown, the center at length dotted with whitish arid areas or becoming entirely arid, finally falling away; perithecia minute, epiphyllous, black; spores oblong-elliptical, colorless, ·0002′—·0003′ long, ·0001′—·00012′ broad.

Living leaves of purple-flowered raspberry, *Rubus odoratus.* Albany. September.

PROTOMYCES MACROSPORUS, *Ung.*

Living leaves and stems of the great ragweed, *Ambrosia trifida.* Albany. June.

When this fungus attacks the stems it forms prominent swellings which are generally about half an inch long and nearly as broad and of a pale-green color. The spores are globose or subglobose and vary considerably in size, ranging from ·0014′—·0024′ in diameter. They are imbedded in the tissues of the swellings.

USTILAGO PALLIDA, *Schrœt.*

Flowers of wild buckwheat, *Polygonum cilinode.*

Three species of smut occur on our knot-weeds. *Ustilago utriculosa* is common on *Polygonum Pennsylvanicum. U. Candollei* is found on *P. sagittatum* and *U. pallida* on *P. cilinode.* Catskill mountains and Grafton, Rensselaer county.

ACALYPTOSPORA POPULI, *n. sp.*

Spots irregular or suborbicular, reddish-brown, definite; spores epiphyllous, oblong-ovate or subfusiform, scarcely pedicellate, colored, one to two-septate, ·0008′—·0009′ long, ·0003′—·00033′ broad.

Living leaves of the great-toothed poplar, *Populus grandidentata*. Center. July.

The fungus was found on the leaves of young trees. The affected tissues soon break up and fall out. The spores appear to form gummy patches or reticulations slightly darker than the general color of the spot.

MACROSPORIUM TRANSVERSUM, *n. sp.*

Spots pale, at first greenish-yellow, then whitish and arid, sometimes with a reddish-brown border, forming transverse bands on the leaf; flocci tufted, subflexuous, septate, colored, ·0016′—·0025 long, ·00016′—·0002′ broad; spores apical, oblong-ovate or oblong-clavate, either obtuse at both ends or acuminate or subrostrate at one end, three to five-septate, with here and there a longitudinal septum, colored, ·001′—·002′ long.

Living leaves of *Carex stricta*. West Albany. May.

The discolored spots are often sterile. Frequently the leaves are narrowed at the affected spots by the contraction of the tissues and are thereby weakened and abruptly bent.

ALTERNARIA TENUIS, *Nees.*

Inner surface of old pods of silkweed, *Asclepias Cornuti*. North Greenbush. November.

In some specimens the rostrum of the spores is not dilated at the apex as figured by Corda, but as the two forms grow intermingled in the same patch they are evidently all one species. The spots, as I find them, are generally thinly effused and indefinite, not definite as figured in "*Fungi Italici*."

ELLISIELLA CAUDATA, *Sacc.*

Dead leaves of broom-grass, *Andropogon scoparius*. Center. May.

This genus appears to me to be founded on very slight characters. It scarcely differs from Colletotrichum, except in having the spores longer pointed.

BOTRYTIS CERATIOIDES, *n. sp.*

Flocci white, flaccid, suberect, obscurely septate, simple or sparingly branched, obtuse and sometimes bilobed at the apex, the upper part densely pulverulent with spores: spores globose, smooth, subochraceous or isabelline, ·00025′—·0003′ in diameter.

Decaying wood of hemlock, *Abies Canadensis*. Albany. June.

This fungus forms more or less extensive patches over the surface of the wood. The upper part of the flocci being covered with spores, the general aspect is somewhat similar to that of some species of Ceratium, *e. g.*, *C. hydnoides*. The spores are so abundant that they hide the flocci and at first sight the whole fungus appears to be pale ochraceous. The smooth spores and white flocci separate this species from *B. carnea*, Schum.

DACTYLIUM DENDROIDES, *Fr.*

Decaying wood and fungi. East Berne. August.

Verticillium agaricinum, Bon., is closely related if not, indeed, the same species.

VERTICILLIUM LACTARII, *n. sp.*

Flocci branched, white: branches either simple, opposite or verticillate, the ultimate ramuli tapering to the apex: spores apical, obovate or oblong-elliptical, smooth, colorless, ·0006′—·0012′ long, ·0004′—·0005′ broad, usually with a slight point or apiculus at the base.

Putrescent Lactarii, especially *L. subdulcis*. Center and East Berne. June — August.

CERCOSPORA TILIÆ, *Pk.*

Living leaves of basswood, *Tilia Americana*. Sandlake. July.

CERCOSPORA LEPIDII, *n. sp.*

Spots small, orbicular, grayish-brown or subcinereous, usually marked with faint concentric lines: flocci amphigenous, about ·0016′ long, single or two to three in a cluster, pallid: spores very long, tapering upwards, slightly constricted at the septa, eight to nine-septate, ·005′—·007′ long, ·0007′—·0008′ broad in the widest part, greenish.

Living leaves of the field pepper-grass, *Lepidium campestre*. New Baltimore, Greene county. May.

This is a very singular species. The fungus occurs on both sides of the leaf, but is more abundant on the upper surface. The flocci are short and thick and occasionally branched. The septa occur in the broad part of the spore, the upper part being much narrowed. Occasionally a cell is divided by a longitudinal septum.

CERCOSPORA DATURÆ, *n. sp.*

Spots suborbicular or irregular, varying in color from cinereous to reddish-brown, sometimes marked by irregular or flexuous elevated lines; flocci amphigenous, scarcely tufted, about equal to the spores in length: spores rather large, narrowed upwards, greenish, four to six-septate, ·002′—·003′ long, about ·0005′ broad in the widest part.

Living leaves of stramonium, *Datura Stramonium*. Cold Spring, Putnam county. June.

CERCOSPORA LONGISPORA, *n. sp.*

Spots suborbicular, sometimes confluent and irregular, grayish-brown, the margin slightly darker; flocci amphigenous, sometimes epiphyllous only, tufted, ·0008′—·0016′ long, colored; spores very long, variously curved or flexuous, colorless, simple or obscurely septate, sometimes forked, ·0024′—·0056′ long, about ·00016′ broad.

Living leaves of lupine, *Lupinus perennis*. Center. July.

The species is apparently very distinct from *C. Lupini*, Cke., and is well marked by its densely tufted black flocci and its very long hyaline spores.

CERCOSPORA VARIA, *n. sp.*

Spots suborbicular, sometimes large and irregular, reddish-brown, with a darker margin, reddish-gray beneath; flocci few, hypophyllous, tufted, short, slightly colored; spores subcylindrical, one to five septate, sometimes multinucleate, ·0016′—·003′ long.

Living leaves of maple-leaved Viburnum. East Berne. August.

A form of this species occurs on *Viburnum Lentago*, in which the spots are brown and the flocci are shorter.

RAMULARIA RANUNCULI, *n. sp.*

Spots suborbicular, scattered, brown; flocci hypophyllous, tufted, colorless, subflexuous; spores oblong, sometimes narrowed toward one end, simple or uniseptate, occasionally catenulate, colorless, ·00065′—·0016′ long, ·0003′—·0005′ broad.

Living leaves of hooked crowfoot, *Ranunculus recurvatus*. West Albany. June.

RAMULARIA VACCINII, *n. sp.*

Spots few or many, orbicular, rarely confluent, whitish or yellowish-green, becoming brown when old; flocci short, nearly colorless, sometimes creeping, hypophyllous, rarely amphigenous, spores very abundant, forming a continuous stratum, often catenulate, very variable, elliptical, ovate, oblong or cylindrical, colorless, ·0003′—·0012′ long, ·00016′—·0002′ broad.

Living leaves of blueberry, *Vaccinium corymbosum* and *Vaccinium Pennsylvanicum*. Center. July.

This species is remarkable both for the abundance and the variability of its spores.

RAMULARIA HAMAMELIDIS, *n. sp.*

Spots small, angular, reddish-brown, a little paler on the lower surface; flocci hypophyllous, tufted, short, slightly colored; spores fusiform or oblong-cylindrical, colorless, ·0005—·0014′ long.

Living leaves of witch-hazel, *Hamamelis Virginica*. Sandlake. July.

Though the spots are distinct enough, the fungus is so minute that it is scarcely visible to the naked eye.

RAMULARIA AQUATILIS, *n. sp.*

Spots small, pale; flocci epiphyllous, tufted, very slender, short, flexuous, white, ·0003′—·0006′ long; spores subfiliform, narrowed toward one end, sometimes three to four-nucleate, colorless, ·0008′—·0012 long, ·0001′—·00012′ broad.

Living leaves of pond-weed, *Potamogeton lonchites*. Albany. September.

The tufts are numerous and very small and white. When magnified they have a stellate appearance, the spores diverging like rays from the central mass of flocci.

ASTEROPHORA PEZIZÆ, *Cd.*

Hymenium of *Peziza hemispherica*. Center. July.

This fungus covers the inner surface of the Peziza with a white stratum of slender filaments and stellately warted spores.

PEZIZA LÆTIRUBRA, *Cke.*

Decaying leaves lying on damp, sandy soil. Center. September.

PEZIZA (MOLLISIA) SINGULARIA, *n. sp.*

Cups minute, waxy, sessile, flattened or convex, not distinctly margined, seated on irregular, indefinite pallid spots, dingy-gray or pale amber-brown; asci cylindrico-clavate, ·002′—·003′ long, ·0003′—·0004′ broad; spores crowded or biseriate, colorless, oblong, sometimes slightly narrowed toward one end, ·0005—·0006′ long, ·00016′—·0002′ broad; paraphyses filiform, scarcely thickened at the apex.

Under surface of living leaves of hispid crowfoot, *Ranunculus hispidus*. East Berne. August.

This is one of the few species of Peziza that attack living plants. Sometimes the cups, or rather the receptacles, are confluent and irregular. Perhaps a form of *Pseudopeziza Ranunculi*, Fckl.

TYMPANIS NEMOPANTHIS, *n. sp.*

Receptacles minute, densely tufted, substipitate, black, at first sphæriiform and opening by a slight irregular chink, then with the disk exposed, slightly margined, concave or plane; asci cylindrical, or oblong-clavate, ·003′—·0045′ long, about ·00032′ broad; spores filiform, variously curved, sometimes multinucleate, ·0016′—·003′ long.

Dead stems and branches of mountain holly, *Nemopanthes Canadensis*. Grafton, Rensselaer county. July.

The tufts are erumpent and quite prominent. They vary much in size, but are generally one to two lines broad. The receptacles are so closely crowded that the disk is often angular from mutual pressure. The species is similar in its appearance to *Tympanis alnea.*

CENANGIUM BETULINUM, *n. sp.*

Receptacles cæspitose or subseriate, erumpent through short transverse chinks in the bark, at first sphæriiform, then open, black, the disk nearly plane, slightly margined, often irregular from mutual pressure, ·007′—·014′ broad; asci oblong or subclavate, ·0016′ long, about ·0004′ broad; spores crowded, oblong, obtuse, slightly colored, triseptate, ·0004′—·0005′ long, about ·00016′ broad.

Dead bark of white birch, *Betula populifolia*. Center. May.

This species differs from *C. seriatum*, which also occurs on birch, in its small size, smaller tufts, which usually contain five to ten plants, and in its septate spores.

TRIBLIDIUM CLAVÆSPORUM, *n. sp.*

Receptacles, when moist, suborbicular, plane or slightly convex, margined, ·03′—·04′ broad, black, when dry more or less contracted, hysteriiform, with thick labiæ; asci clavate or cylindrical, ·0035′—·0045′ long; spores oblong-clavate, crowded or biseriate, colored, four-septate, ·0009′—·0011′ long, ·0003′—·0004′ broad.

Decorticated wood of willows, *Salix nigra*. Albany. July.

ASCOMYCES DEFORMANS, *Berk.*

Living leaves of peach trees. Sandlake.

GYMNASCELLA, *gen. nov.*

Perithecia wanting; asci numerous, subglobose, produced upon or among slender, branching filaments.

Externally this fungus has the aspect of species of Sporotrichum, but the spores are produced in asci.

GYMNASCELLA AURANTIACA, *n. sp.*

Filaments slender, branched, intricate, colored, forming minute subconfluent bright-orange or scarlet-colored tufts; asci numerous, subglobose, produced among the filaments, ·0004′—·0006′ long; spores orbicular, ·00016′—·0002′ broad, crowded in the ascus, colorless, generally uninucleate.

Old bones in damp places. Albany. May.

The bright red color of the tufts readily attract the attention. The spores are flattened, and when viewed edgewise appear narrowly elliptical. The asci are produced upon short branches of the filaments and frequently form dense clusters or masses. I have seen no evidence of a perithecium, and indeed the asci are thin and somewhat fugacious, and from the crowding of the spores are with difficulty seen. I have not been able to detect with certainty more than six spores in an ascus, though probably there are eight in some cases.

By the absence of a perithecium, or receptacle, this fungus is related to Ascomyces and kindred genera, but its whole character otherwise is very different. In its habitat it is related to Onygena, the species of which affect animal substances, but it forms no definite head or peridium. It also presents some analogies with other genera, but with none does it seem to agree in all respects. I am disposed, however, to regard it as belonging to the Onygenei, notwithstanding the absence of a definite peridium.

VALSA (CRYPTOSPORA) TOMENTELLA, *n. sp.*

Perithecia four to eight, subcircinate, nestling in the inner bark, black, clothed below with a whitish tomentum, disk lanceolate, whitish or brownish, erumpent through a narrow transverse chink which is acute at each end, pierced by the smooth black ostiola; asci oblong, broad, subcylindrical to fusiform, sessile, .002′—.003′ long; spores cylindrical, crowded, colorless, more or less curved, obtuse at the ends, usually multinucleate, .002′—.0027′ long, .00016′—.0002′ broad.

Bark of white birch, *Betula populifolia*. West Albany. May.

This species is related to *V. cinctula*, but the peculiar character of the disk and the whitish tomentum that invests the base of the perithecia afford available characters by which to separate it from that and other allied species.

SPHAERIA PETIOLOPHILA, *n. sp.*

Perithecia minute, scattered, covered by the epidermis which is pierced by the prominently papillate or short rostrate ostiola, depressed-globose, black; asci narrow, subcylindrical, .0016′—.0018′ long; spores narrowly fusiform, pointed at each end, colorless, biseriate, .0005′—.0006′ long, about .00008′ broad, sometimes containing three or four nucleoli.

Petioles of fallen leaves of mountain maple, *Acer spicatum*. Helderberg mountains. May.

This species belongs to the modern genus Gnomonia, section

Eugnomonia. In *S. petiolorum* Schw., which according to Fuckel is the same as *S. amœna* Nees., the perithecia are surrounded by a white tubercle and the spores are shorter and half as broad as long.

SPHÆRELLA FRAXINEA, *n. sp.*

Perithecia numerous, minute, .003′ broad, black, either epiphyllous or hypophyllous, generally collected in groups forming suborbicular spots; asci oblong, often slightly narrowed above, .0014′—.0016′ long; spores crowded, oblong-ovate, uniseptate, colorless, .0004′—.00045′ long, .00016′—.0002′ broad, divided by the septum into two very unequal parts, the smaller part one-third or one-fourth the length of the larger.

Fallen leaves of ash, *Fraxinus Americana.* Helderberg mountains. May.

Distinct from *Sphœric Fraxicola* Schw., in the character of the spots and of the perithecia. I have not seen fertile specimens of that species.

VENTURIA CURVISETA, *n. sp.*

Perithecia numerous, minute, .003′—.004′ in diameter, clustered or subgregarious, black, bearing near the apex five to eight diverging black setæ, .003′—.005′ long and abruptly curved near the base; asci oblong, narrowed above, often slightly curved .0016′—.002′ long; spores crowded or biseriate, oblong, colorless, .00045′—.0005′ long, .00016′—.0002′ broad, faintly uniseptate, the upper cell broader than the lower.

Callen leaves of mountain holly, *Nemopanthes Canadensis.* Fenter. May and June.

The peculiar feature of this species is found in the curved bases of the setæ. These are so strongly bent that they spread nearly horizontally and appear like stellate rays when the perithecia are viewed from above. They are few in number and often unequal in length.

(5.)

REMARKS AND OBSERVATIONS.

GERANIUM MACULATUM, *L.*

A form with white flowers. Syracuse. *Mrs. S. M. Rust.*

CASSIA NICTITANS, *L.*

Banks of the Hudson river. North Greenbush.

MITCHELLA REPENS, *L.*

The form producing white berries occurs near Moravia. *M. F. Merchant.*

PLANTAGO LANCEOLATA, *L.*

A singular form was found by Mrs. Rust near Syracuse. It had a compound spike, ovate in outline. The branches were short and densely crowded. It appeared as if many of the flowers had been transformed into short branches.

POTAMOGETON AMPLIFOLIUS, *Tuckm.*

This fine large species is plentiful in Warner's lake, East Berne. *P. pusillus, P. pectinatus* and both varieties of *P. gramineus* also abound there.

SMILAX HISPIDA, *Muhl.*

Flowering specimens were found in Cicero swamp, Onondaga county, by Mrs. Rust.

CALOPOGON PULCHELLUS, *R. Br.*

A white-flowered form. Syracuse. *Mrs. M. C. Still.*

JUNIPERUS VIRGINIANA, *L.*

This tree is common along the Hudson river from Albany to West Point. It here has a peculiar aspect. The branches are very numerous and frequently diverge from the trunk at a small angle. They afford a dense spray beautifully symmetrical in outline and having nearly the form of an elongated cone. Its beauty of figure renders it a very desirable acquisition for the adornment of parks, court-yards and ornamental grounds. It is freely attacked by three species of fungus, one of which produces oblong or spindle-shaped swellings in the branches and which probably has something to do in determining the peculiar aspect of these trees. The other two produce the subglobose galls which are commonly known as "Cedar apples." These fungi do not appear to destroy the life of the tree, though they cling to it year after year as a parasite.

BROMUS TECTORUM, *L.*

This beautiful introduced grass has become common all along the Hudson River railroad between Albany and Cold Spring and probably still farther south. Railroads are very effective agents in the dissemination and distribution of many plants.

CORTINARIUS IODES, *B. & C.*

The pileus in this species is sometimes spotted with white. The bulbous white stem is adorned with lilac-colored fibrils.

LENZITES SEPIARIA, *Fr.*

This species usually inhabits wood of coniferous trees, but it sometimes occurs on other wood. It was found near Albany in company with *Lenzites vialis* on a prostrate trunk of the necklace poplar or cottonwood, *Populus monilifera.* It has occurred also on willow, *Salix discolor.*

STEREUM RUGOSUM, *Fr.*

Well-developed specimens occurred near East Berne. The margin was narrowly reflexed, blackish and zonate. A cupulate form was also found.

NEW YORK CARICES.

Since the publication of the New York State Flora, several changes in the nomenclature of the genus Carex have been made. A revised list of the New York Carices is here given, the names in the left-hand column being those adopted by Dr. Torrey in the New York State Flora; those in the right-hand column are the names applied to the same species in the last edition of Gray's Manual.

Names in N. Y. S. Flora.	Names in Gray's Manual.
Carex dioica, *L.*	Carex gynocrates, *Wormsk.*
C. exilis, *Dew.*	C. exilis, *Dew.*
C. pauciflora, *Lightf.*	C. pauciflora, *Lightf.*
C. polytrichoides, *Muhl.*	C. polytrichoides, *Muhl.*
C. Willdenovii, *Schk.*	C. Willdenovii, *Schk.*
C. Backii, *Boott.*	C. Backii, *Boott.*
C. disperma, *Dew.*	C. tenella, *Schk.*
C. chordorhiza, *Ehrh.*	C. chordorhiza, *Ehrh.*
C. cephalophora, *Muhl.*	C. cephalophora, *Muhl.*
C. Muhlenbergii, *Schk.*	C. Muhlenbergii, *Schk.*
C. siccata, *Dew.*	C. siccata, *Dew.*
C. rosea, *Schk.*	C. rosea, *Schk.*
C. retroflexa, *Muhl.*	C. retroflexa, *Muhl.*
C. sparganioides, *Muhl.*	C. sparganioides, *Muhl.*
C. stipata, *Muhl.*	C. stipata, *Muhl.*
C. vulpinoidea, *Mx.*	C. vulpinoidea, *Mx.*
C. setacea, *Dew.*	
C. bromoides, *Schk.*	C. bromoides, *Schk.*
C. alopecoidea, *Tuckm.*	C. alopecoidea, *Tuckm.*
C. Sartwellii, *Dew.*	C. disticha, *Huds.*
C. teretiuscula, *Good.*	C. teretiuscula, *Good.*
C. decomposita, *Muhl.*	C. decomposita, *Muhl.*
C. trisperma, *Dew.*	C. trisperma, *Dew.*
C. Deweyana, *Schw.*	C. Deweyana, *Schw.*
C. canescens, *L.*	C. canescens, *L.*
C. can. v. sphærostachya.	C. can. v. vitilis.
C. stellulata, *Good.*	C. stellulata, *L.*
C. stell. v. sterilis.	C. sterilis, *Willd.*
C. stell. v. scirpoides.	C. stell. v. scirpoides.
C. tenuiflora, *Wahl.*	C. tenuiflora, *Wahl.*
C. scoparia, *Schk.*	C. scoparia, *Schk.*
C. scop. v. lagopodioides.	C. lagopodioides, *Schk.*
C. straminea, *Schk.*	C. straminea, *Schk.*
C. stram. v. fœnea.	C. fœnea, *Willd.*
C. stram. v. moniliformis.	C. fœn. v.? sabulonum.

Names in N. Y. S. Flora.	Names in Gray's Manual.
Carex stram. v. festucacea.	Carex stram. v. festucacea.
C. stram. v. cristata.	C. cristata, *Schw.*
C. stram. v. mirabilis.	C. crist. v. mirabilis.
C. pedunculata, *Muhl.*	C. pedunculata, *Muhl.*
C. squarrosa, *L.*	C. squarrosa, *L.*
C. Buxbaumii, *Wahl.*	C. Buxbaumii, *Wahl.*
C. triceps, *Mx.*	C. triceps, *Mx.*
C. virescens, *Muhl.*	C. virescens, *Muhl.*
C. gracillima, *Schw.*	C. gracillima, *Schw.*
C. formosa, *Dew.*	C. formosa, *Dew.*
C. Davisii, *Schw. & Torr.*	C. Davisii, *Schw. & Torr.*
C. rigida, *Good.*	C. rigida v. ? Bigelovii.
C. angustata, *Boott.*	C. stricta, *Lam.*
C. cæspitosa, *L.?*	C. vulgaris, *Fr.*
C. aquatilis, *Wahl.*	C. aquatilis, *Wahl.*
C. aurea, *Nutt.*	C. aurea, *Nutt.*
C. crinita, *Lam.*	C. crinita, *Lam.*
C. oligosperma, *Mx.*	C. oligosperma, *Mx.*
C. bullata, *Schk.*	C. bullata. *Schk.*
C. bull. v. cylindracea.	C. monile, *Tuckm.*
C. cylindrica, *Tuckm.*	C. Tuckermani, *Boott.*
C. utriculata, *Boott.*	C. utriculata, *Boott.*
C. subulata, *Mx.*	C. subulata, *Mx.*
C. folliculata, *L.*	C. folliculata, *L.*
	C. rostrata, *Mx.*
C. intumescens, *Rudge.*	C. intumescens, *Rudge.*
C. int. v. globularis.	C. Grayii, *Carey.*
C lupulina, *Muhl.*	C. lupulina, *Muhl.*
C. lup. v. polystachya.	C. lupuliformis, *Sartw.*
C. scabrata, *Schw.*	C. scabrata, *Schw.*
C. Schweinitzii, *Dew.*	C. Schweinitzii, *Dew.*
C. retrorsa, *Schw.*	C. retrorsa, *Schw.*
C. tentaculata, *Muhl.*	C. tentaculata, *Muhl.*
C. hystricina, *Willd.*	C. hystricina, *Willd.*
C. Pseudo-Cyperus, *L.*	C. Pseudo-Cyperus, *L.*
	C. comosa, *Boott.*
C. longirostris, *Torr.*	C. longirostris, *Torr.*
C. trichocarpa, *Muhl*	C. trichocarpa, *Muhl.*
C. aristata, *R. Br.*	C. aristata, *R. Br.*
C. umbellata, *Schk.*	C. umbellata, *Schk.*
C. Pennsylvanica, *Lam.*	C. Pennsylvanica, *Lam.*
C. Penn. v. Muhlenbergii.	C. varia, *Muhl.*
C. Novæ-Angliæ, *Schw.*	C. Novæ-Angliæ, *Schw.*
C. filiformis, *L.*	C. filiformis, *L.*
C. lanuginosa, *Mx.*	C. lanuginosa, *Mx.*
C. vestita, *Willd.*	C. vestita, *Willd.*
C. pubescens, *Muhl.*	C. pubescens, *Muhl.*
C. limosa, *L.*	C. limosa, *L.*
C. lim. v. irrigua.	C. irrigua, *Sm.*
C. livida, *Willd.*	C. livida, *Willd.*
C. flava, *L.*	C. flava, *L.*
C. Œderi, *Ehrh.*	C. Œderi, *Ehrh.*
C. pallescens, *L.*	C. pallescens, *L.*
C. Torreyi, *Tuckm.*	C. Torreyi, *Tuckm.*
C. striata, *Mx.*	C. polymorpha, *Muhl.*
C. granularis, *Muhl.*	C. granularis, *Muhl.*
C. laxiflora, *Lam.*	C. grisea, *Wahl.*
C. conoidea, *Schk.*	C. conoidea, *Schk.*
C. digitalis, *Willd.*	C. digitalis, *Willd.*

Names in N. Y. S. Flora.	Names in Gray's Manual.
Carex oligocarpa, *Schk.*	Carex oligocarpa, *Schk.*
C. olig. v. major.	C. Hitchcockiana, *Dew.*
C. tetanica, *Schk.*	C. tetanica, *Schk.*
C. anceps, *Willd.*	C. laxiflora, *Lam.*
C. blanda, *Dew.*	C. lax. v. blanda.
C. Crawei, *Dew. mss.*	C. Crawei, *Dew.*
C. plantaginea, *Lam.*	C. plantaginea, *Lam.*
C. Careyana, *Torr.*	C. Careyana, *Torr.*
C. eburnea, *Boott.*	C. eburnea, *Boott.*
C. flexilis, *Rudge.*	C. flexilis, *Rudge.*
C. arctata, *Boott.*	C. arctata, *Boott.*
C. debilis, *Mx.*	C. debilis, *Mx.*
C. miliacea, *Muhl.*	C. miliacea, *Muhl.*
C. lacustris, *Willd.*	C. riparia, *Curtis.*

The list derived from the Flora of New York comprises ninety-one species and fifteen varieties, which in the Manual are regarded as one hundred and one species and six varieties. Representatives of the following species and varieties have been added to the Herbarium since the publication of the Flora:

Carex scirpoidea, *Mx.*
C. Steudelii, *Kunth.*
C. sychnocephala, *Carey.*
C. alata, *Torr.*
C. adusta, *Boott.*
C. torta, *Boott.*
C. aperta, *Boott.*
C. lenticularis, *Mx.*
C. gynandra, *Schw.*
C. platyphylla, *Carey.*
C. Richardsonii, *R. Br.*
C. Sullivantii, *Boott.*
C. striata, *Mx.*
C. Houghtonii, *Torr.*
C. extensa, *Good.*
C. glaucodea, *Tuckm.*
C. tentaculata v. gracilis, *Boott.*
C. tent. v. altior, *Boott.*
C. tent. v. unispicata, *Pk.*

Carex capillaris, *L.*
C. retrocurva, *Dew.*
C. Muhlenbergii v. enervis, *Boott.*
C. teretiuscula v. major, *Koch.*
C. vulpinoidea v. platycarpa, *Olney.*
C. rosea v. radiata, *Dew.*
C. scoparia v. minor, *Boott.*
C. adusta v. sparsiflora, *Olney.*
C. straminea v. tenera, *Boott.*
C. stram. v. aperta, *Boott.*
C. stram. v. Crawei, *Boott.*
C. stricta v. strictior, *Gr.*
C. stricta v. xerocarpa, *Gr.*
C. laxiflora v. intermedia, *Boott.*
C. laxiflora v. plantaginea, *Boott.*
C. laxiflora v. latifolia, *Boott.*
C. retrorsa v. Hartii, *Gr.*
C. lupulina v. gigantoidea, *Dew.*
C. Emmonsii v. elliptica, *Boott.*

The whole number of species now known to inhabit the State is one hundred and nineteen. Adding to these the twenty-six varieties whose names are given in the preceding list and we have a total of one hundred and forty-five species and varieties.

(6)

NEW YORK SPECIES OF LEPIOTA.

"White-spored, hymenophorum distinct from the stem, veil universal, concrete with the epidermis of the pileus. Lamellæ free, often remote, neither sinuate nor decurrent." — *Hymen. Europ.*, p. 29.

The word Lepiota has reference to the scaly character of the pileus. The species grouped under this name may be distinguished from the species of Amanita by the character of the scales of the pileus, which in that subgenus are wart-like and superficial and for the most part easily separable from the pileus, while in this they are intimately united to the cuticle, which usually breaks up into scales or scale-like fragments. On the other hand they are distinguished from the species of Armillaria by the lamellæ which in most of the species do not reach the stem but are wholly free from it. In the few instances in which they reach the stem they are but slightly attached to it, and not sinuate or decurrent as in Armillaria.

The species are mostly of medium size, though *Agaricus procerus* has few rivals in length of stem, and *A. Morgani* in breadth of pileus. The pileus is soft and fleshy but generally rather thin. The cuticle, which is usually entire in the very young plant, soon breaks up into scales which are appressed or erect, large or small, fibrillose, floccose, granular or mealy according to the species. These scales often give an ornamental or variegated appearance to the pileus which is quite attractive. In form, the pileus in the young plant is subglobose or ovate, then it becomes convex or campanulate and finally in many species it is nearly flat with a central prominence or umbo. This umbo in such species as *A. procerus* and *A. mastoideus* is especially prominent.

The lamellæ are white or whitish in most of the species. Occasionally they may be tinged with yellow and in a few species they assume a smoky-red or pinkish-brown hue in old age or in drying. In *A. Badhami*, *A. meleagris* and *A. Americanus* the whole plant changes color when wounded or in drying.

The stem in most of the species is rather slender and either hollow or stuffed with webby or cottony filaments. The annulus or ring that is attached to and surrounds the stem is sometimes slight and disappears in very wet weather or in old age. The spores, which are normally white, sometimes assume a yellowish hue when kept a long time. *A. Morgani*, an Ohio species, is remarkable for producing spores of a bright-green color which soon fades to a dull-green. The spores vary much in size in the different species and afford, in several instances, excellent specific characters. *A. procerus* has very large spores, *A. cristatus* small ones and *A. metulæsporus* long ones.

Several of the species occur in woods and are especially fond of a loose soil composed chiefly of decayed vegetable matter, others grow in open grassy places, in fields, gardens and cultivated grounds. A few are occasionally found on old stumps and much decayed wood. *A. acutesquamosus*, *A. cepæstipes*, and some others are sometimes found growing in conservatories.

None of our species are reputed to be poisonous, yet only two, *A. procerus* and *A. naucinoides*, have been reported edible.

Fries divides this subgenus into two primary sections, the first containing the species with a dry pileus, the second, those with a viscid pileus. The first section, which has by far the greater number of species, is subdivided into five groups, all but one of which are represented in our flora. Of the Mesomorphi, "smaller, slender species with a hollow stem, a dry pileus and an entire, not granulose lacerated cuticle," we have not yet detected any representatives.

We have followed the system of Fries in our arrangement of the species.

SYNOPSIS OF THE SPECIES.

1. Pileus dry	2
2. Pileus with the margin even	3
3. Annulus movable, stem more than five inches long	A. procerus.
3. Annulus not movable, stem less than five inches long,	4
4. Pileus smooth, lamellæ becoming pinkish-brown	A. naucinoides.
4. Pileus rough with erect acute scales	5
5. Lamellæ crowded, some of them forked	A. Friesii.
5. Lamellæ close, simple	A. acutesquamosus.
4. Pileus with fibrillose, floccose or appressed scales	6
6. Scales reddish or reddish-brown	7
7. Scales soon disappearing from the margin	A. cristatus.
7. Scales everywhere persistent	A. rubrotinctus.
6. Scales blackish or blackish-brown	8
8. Stem short, bulbous	A. fuscosquameus.
8. Stem rather long, not bulbous	A. felinus.
6. Scales pale yellow	A. alluviinus.
4. Pileus with granular, branny or mealy scales	9
9. Pileus rusty-yellow or reddish-yellow, lamellæ adnexed	A. granulosus.
9. Pileus ochraceous-yellow, lamellæ adnate	A. amianthinus.
9. Pileus dingy-white or brownish	A. pusillomyces.
9. Pileus white	A. cristatellus.
2. Pileus with the margin striate or substriate	10
10. Stem enlarged above the base	11
11. Plant becoming brownish-red in drying	A. Americanus.
11. Plant not becoming brownish-red in drying	A. cepæstipes.
10. Stem not enlarged above the base	A. metulæsporus.
1. Pileus viscid	12
12. Pileus white	A. illinitus.
12. Pileus alutaceous or dingy-yellow	A. oblitus.

CUTICLE OF THE PILEUS DRY.

PROCERI.

Annulus persistent, movable, distinct from the volva.

This tribe is distinguished by its species having a well-developed annulus, which soon breaks loose from its attachment to the stem and thus forms a movable ring upon it, and a distinct cavity or depression in the pileus beneath the umbo for the reception of the stem.

The only representative thus far found in our State is *A. procerus*, but *A. rhacodes*, *A. excoriatus*, *A. mastoideus* and *A. Morgani* have been reported from neighboring States and will probably yet occur in our limits. All the European species of this tribe are classed by Fries as edible.

AGARICUS PROCERUS, *Scop.*

Tall Agaric. Parasol Mushroom.

Pileus at first ovate, then broadly convex or expanded, *strongly umbonate*, scaly or spotted from the breaking up of the cuticle, whitish alutaceous or brownish, the deflexed margin generally silky-fibrillose, the flesh soft, white; lamellæ close, free or remote, whitish, sometimes tinged with yellow or pink ; *stem tall*, cylindrical or slightly tapering upward, bulbous, hollow, squamose or furfuraceous, colored like the pileus, sometimes spotted, the annulus thick, firm, *movable*, white ; *spores large*, elliptical, ·00055 —·0007′ long, ·00035 — 00045 broad.

Plant 5′—10′ high ; pileus 3′—6′ broad ; stem 4″—6″ thick.

Fields, pastures, roadsides and occasionally in woods. July to September.

This Agaric resembles a parasol in shape, whence the popular name. It is easily distinguished from the allied species by its long stem, movable ring and prominent umbo. Generally the scales of the pileus are rather broad and distant from each other toward the margin, but closer toward the umbo on which the cuticle usually remains unruptured. For this reason the umbo is generally darker colored than the rest of the pileus. Sometimes the scales are appressed and spot-like, again they are slightly reflexed and then they give a rougher appearance to the pileus. They may be brownish, tawny-brown or reddish-brown in color. They often disappear almost wholly from the margin of the pileus which then has a whitish silky appearance. The stem is remarkable for its great length when compared with its thickness and is suggestive of the specific name, *procerus*. In extreme cases it is nearly or quite a foot long, though rarely more than half an inch thick. In a dried specimen before me the stem is nine inches long and one-fourth of an inch thick. The surface of the stem is in many cases merely scurfy, in others it is scaly from the cracking of the cuticle into small areas or fragments. Rarely it has a spotted appearance. Generally the plant grows singly, but sometimes it forms large tufts or clusters.

Fries remarks that its odor and taste are pleasant and that it is edible but tough. Probably for esculent purposes it would be better to use only the younger plants.

CLYPEOLARII.

Annulus persistent, fixed, homogeneous with the universal veil which coats the stem.

In this tribe the annulus does not become movable on the stem and the fibrils or scales of the veil clothe that part of the stem which is below the annulus and the exterior or lower surface of the annulus also. The species are mostly small or of medium size and some possess a distinct odor.

AGARICUS FRIESII, *Lasch.*

Fries' Agaric.

"Pileus fleshy, soft, lacerated into *appressed tomentose scales* ; stem hollow, with a webby pith, subbulbous, squamose; annulus superior, pendulous, equal; lamellæ subremote, linear, crowded, branched." — *Hymen. Europ.*, p. 31.

Pileus fleshy but rather thin, convex or nearly plane, clothed with a soft tawny or brownish-tawny tomentum which breaks up into appressed often subconfluent scales, the disk rough with small acute erect scales, flesh soft, white ; lamellæ *narrow, crowded*, free, white, *some of them forked ;* stem equal or slightly tapering upward, subbulbous, hollow, colored like the pileus below the annulus and there clothed with soft tomentose fibrils which sometimes form floccose or tomentose scales, white and pruinose above, annulus well-developed, flabby, white above, tawny and floccose-scaly below ; spores .00028′ — .00032′ long, .00012′ — .00016′ broad.

Plant 2′ — 5′ high ; pileus 1′ — 4′ broad ; stem 2 — 5′ thick.

Soft loose soil in woods and low bushy places. July — September. Catskill mountains and East Worcester.

I have quoted the description of this species as it is given in Epicrisis, because the American plant which I have referred to it does not in all respects agree with this description, but comes so near it that it can scarcely be specifically distinct. In the American plant, so far as I have seen it, erect acute scales are always present, especially on the disk, and the tomentum of the pileus does not always break up into distinct areas or scales. Neither is the stem usually scaly but rather clothed with soft tomentose or almost silky fibrils. The lamellæ are crowded and some of them are forked. At the furcations there are slight depressions which interrupt the general level of the edges and give them the appearance of having been eaten by insects. The plant has a slight odor, especially when cut or bruised.

AGARICUS ACUTESQUAMOSUS, *Wein.*

Acute-scaled Agaric.

"Pileus fleshy, obtuse, at first *hairy-floccose,* then *bristly with erect acute squarrose scales ;* stem somewhat stuffed, stout, bulbous, pruinose above the moderate-sized annulus ; lamellæ approximate, lanceolate simple." — *Hymen. Europ.,* p. 31.

Pileus convex or nearly plane, obtuse or broadly subumbonate clothed with a soft tawny or brownish-tawny tomentum which usually breaks up into imperfect areas or squamæ, rough with erect acute scales which are generally larger and more numerous on the disk ; lamellæ close, free, white or yellowish ; stem equal, hollow or stuffed with webby filaments, subbulbous ; spores about .0003′ long, .00012′ —.00016′ broad.

Plant of the same size as the last.

Woods and conservatories. Buffalo, *G. W. Clinton.* Albany, *A. F. Chatfield.* Adirondack mountains and Brewerton.

Fries remarks that this species agrees so closely with the preceding one that he thinks the two should be united. The chief differences set forth in the descriptions already quoted consist in the appressed, tomentose scales and branched lamellæ of the one and the erect acute scales and simple lamellæ of the other. Now in the American plants I find erect acute scales on all the specimens, both those with branched and those with simple lamellæ, so that the difference between the two forms is reduced with us to that of the lamellæ alone. It is therefore probable that they will have to be united. The form found in the hot houses seems to have the tomentum of the pileus less dense and the erect scales more numerous than in the form growing in woods. The annulus is frequently lacerated. In the specimens of the woods the erect scales are sometimes blackish in color, and they then contrast quite conspicuously with the tawny or brownish-tawny tomentum beneath them. They vary in size and shape. Some resemble pointed papillæ, others, being more elongated, are almost spine-like. These are sometimes curved. They are generally larger and more numerous on the disk than elsewhere, and often they are wholly wanting on the margin.

Agaricus cristatus, *A. & S.*

Crested Agaric.

Pileus thin, campanulate or convex, then nearly plane, *obtuse,* at first with an even reddish or reddish-brown surface, then *white adorned with reddish or reddish-brown* scales formed by the breaking up of the cuticle, the central part or disk colored like the scales ; lamellæ close, free, white ; stem slender, hollow, equal, smooth or silky-fibrillose below the ring, whitish, annulus small, white ; spores *oblong* or *narrowly subelliptical.* .0002′ — .00028′ long, .00012′ — .00015′ broad.

Plant 1′ — 2′ high ; pileus .5′ — 1.5′ broad ; stem 1″ — 2″ thick.

Grassy places and borders of woods. June — September.

This species is easily known by its small size and the crested appearance of the white pileus, an appearance produced by the orbicular unruptured portion of the cuticle that remains like a colored spot on the disk. The fragments or scales are more close near this central part and more distant from each other toward the margin, where they are often wholly wanting. The scales are sometimes very small and almost granular. In very wet weather the margin of the pileus in this and some other species becomes upturned or reflexed.

The spores when viewed in one position appear as if truncated at one end and acute or pointed at the other, in another position they appear narrowly elliptical, the truncate end being slightly rounded. The spores of *A. Friesii* are somewhat similar in shape but are a little longer.

The plant usually has a distinct odor.

Agaricus rubrotinctus, *Pk. n. sp.*

Red-tinted Agaric.

Pileus thin, convex or nearly plane, sometimes slightly and broadly umbonate, at first even with a reddish or pinkish surface, a little darker and sometimes slightly rough on the disk, then adorned with appressed scales formed by the breaking up of the cuticle ; lamellæ close, free, white or whitish ; stem hollow, equal or slightly thickened at the base, smooth or slightly silky-fibrillose below the annulus, whitish, the annulus *well developed, membranous,* white or pinkish, *persistent ;* spores *subelliptical, uninucleate,* .00035′ — .00045′ long, .0002′ — .00025′ broad.

Plant 1.5′ — 3.5′ high; pileus 1′ — 2.5′ broad; stem 2″ — 3″ thick.

Thin woods and open places. July — September. Helderberg mountains and East Worcester.

When young this Agaric closely resembles the preceding one from which it is distinguished by its larger size, more scaly and less white pileus, larger and more persistent annulus and larger spores. The cuticle sometimes remains entire and sometimes cracks in a radiating manner toward the margin, thereby giving to the pileus a sort of fibrillose or virgate appearance. The annulus sometimes partly breaks from its attachment to the stem and becomes almost movable.

AGARICUS FELINUS, *Pers.*

Cat Agaric.

Pileus thin, subcampanulate or convex, subumbonate, adorned with numerous *subtomentose* or *floccose blackish-brown scales;* lamellæ close, free, white; stem *slender, rather long*, equal or slightly tapering upward, hollow, clothed with soft loose floccose filaments, brown, annulus slight, evanescent; spores elliptical, ·00025′—·0003′ long, ·00016′—·0002, broad.

Plant 2′—3·5′ high; pileus ·5′—1·5′ broad; stem 1″—2″ thick.

Woods. Adirondack mountains. August and September.

This is not a common species with us, having occurred thus far only in the woods of our mountainous regions. The scales or adornments of the pileus are similar in character to those of *A. Friesii*, but are much darker in color. Fries unites this Agaric with *A. clypeolarius* as a variety, but says that it is so frequent and so constant in the pine woods of Europe that it deserves to be noticed separately. It is easily distinguished from *A. rubrotinctus* by the darker color of the scales of the pileus, by the loose floccose filaments that clothe the brown stem, by the fugacious annulus and the smaller spores.

AGARICUS FUSCOSQUAMEUS, *Pk.*

Brown-scaled Agaric.

Pileus rather thin, hemispherical or convex, subumbonate, adorned with numerous *substrigose, erect* or *reflexed blackish-brown scales;* lamellæ close, free, white; stem *short, rather stout*, equal, hollow or stuffed with a cottony pith, clothed with loose soft dingy floccose filaments, *bulbous*, brown; annulus slight, evanescent; spores narrowly elliptical, ·00025′—·0003′ long, ·00012′—·00015″ broad.

Plant 2′—3′ high; pileus 1·5′—2·5′ broad; stem 3″—4″ thick.

Pine and hemlock woods. Croghan. September.

This species is closely related to the preceding one, and might, perhaps, be considered a variety of it. It has the same color, but is distinguished by its more strigose erect scales, its short but stouter bulbous stem, broader pileus and narrower spores. It is apparently very rare, having been detected only in the locality here given.

Agaricus alluviinus, *Pk., n. sp.*

Alluvial Agaric.

Pileus thin, convex or plane, sometimes reflexed on the margin, *white, adorned with minute pale-yellow hairy or fibrillose scales;* lamellæ thin, close, free white or yellowish; stem slender, fibrillose, whitish or pallid, slightly thickened at the base, annulus slight, subpersistent, often near the middle of the stem; spores elliptical, ·00025′—·0003′ long, ·00016′—·0002′ broad.

Plant 1′—2′ high; pileus ·5′—1′ broad; stem 1″—1·5″ thick.

Alluvial soil, among weeds. Albany. July.

In the fresh plant the scales are of a pale-yellow or lemon color, but in drying they and the whole pileus take a deeper rich yellow hue. The annulus is generally remote from the pileus, sometimes even below the middle of the stem.

Agaricus metulæsporus, *B. and Br.*

Long-spored Agaric.

Pileus thin, campanulate or convex, subumbonate, at first with a uniform pallid or brownish surface, which soon breaks up into *small brownish scales,* the *margin more or less striate,* often appendiculate with fragments of the veil; lamellæ close, free, white; stem slender, equal or slightly tapering upward, hollow, adorned with soft loose floccose scales or filaments, pallid, annulus slight, evanescent; spores *long, subfusiform,* ·00055′—·00075′ long, ·00025′—·0003′ broad.

Plant 2′—3·5′ high; pileus ·5′—1·5′ broad; stem 1″—2″ thick.

Woods. Adirondack mountains. August and September.

This species occurs with us in the same localities as *A. felinus,* which it very much resembles in size, shape and general characters, differing only in color, the striate margin of the pileus and the character of the spores. Both were at first taken to be forms of *A. clypeolarius,* and were included in the description of that species in Report 23, p. 72. Judging from the published descriptions of *A. clypeolarius,* it is probable that in Europe also it has been made to include forms which will yet be considered distinct species. In Epicrisis it is said to "vary wonderfully in size and color," and in the Hand-book of British Fungi the pileus is said to be "white, yellow, pink, rufous, brown, etc." In Icones Selectæ, Fries figures what he considers the typical form of the species, a form which I have not observed here, and which probably does not occur with us. It is a little remarkable that none of the published descriptions and figures of this species, so far as I have seen them, give the spore characters. Those characters are often of the utmost value in distinguishing closely related species. In regard to the spores of *A. metulæsporus*, the descriptions do not all agree, but the discrepancies are probably due to variability in the spores and to lack of care in the examination. In Epicrisis they are said to be twice as large as in the allied species, and acutely pointed at one end. In Grevillea, Vol. I, p. 55, they are said to be nine-pin shaped or obliquely clavate. In Mycological Illustrations, by M. C. Cooke, they are represented as fusiform and acute at both ends. In our plant they are nearly fusiform in shape, but varying somewhat in the character of the apices, which are sometimes acute, sometimes blunt, and sometimes acute at one end and blunt at the other. The species has a wide range, having been found in Ceylon, England and Alabama.

ANNULOSI.

Annulus superior, fixed, subpersistent, universal veil adnate to the pileus.

The species of this tribe are chiefly distinguished by the well-developed but fixed and rather persistent annulus. They are generally larger and more fleshy than those of the preceding tribe. In some species the lamellæ, and in others the whole plant changes color in drying.

AGARICUS CEPÆSTIPES, *Sow.*

Onion-stemmed Agaric.

Pileus thin, at first ovate, then campanulate or expanded, umbonate, soon adorned with numerous *minute brownish scales* which are often *granular or mealy, plicate striate* on the margin, white or yellow, the umbo darker; lamellæ thin, close, free, white, becoming dingy with age or in drying; stem rather long, tapering toward the apex, generally *enlarged in the middle or near the base*, hollow, annulus thin, subpersistent; spores subelliptical, uninucleate, .0003′ —.0004′ long, .0002′ —.0003′ broad.

Plant often cæspitose, 2′—4′ high; pileus 1—2′ broad; stem 2″ —3″ thick.

Rich ground and decomposing vegetable matter. Also in graperies and conservatories. Buffalo, *G. W. Clinton*. Albany, *A. F. Chatfield*.

The species takes its name from the peculiar oblong swelling or enlargement in the middle or the lower part of the stem. It is similar to the enlargement in the flowering stem of an onion. The plants sometimes occur in tufts or clusters of many individuals. When very young the pileus is ovate and of a uniform color, but the surface soon breaks up into minute scales which rest upon a white or whitish ground color. In drying the lamellæ generally assume a dingy or smoky hue, but the pileus does not generally change color. Two forms occur in hot-houses, the one having a white, the other a yellow pileus. The striations of the margin are rather deep and close and give a somewhat plicate appearance to that part of the pileus. The form that grows in the open air has shorter striations on the margin, and the stem is not so regularly enlarged in the middle, the enlargement being mostly near the base and sometimes wanting entirely. Possibly this form may be the *A. rorulentus* Panizzi, but it seems to me too near *A. cepæstipes* to be separated.

AGARICUS AMERICANUS, *Pk.*

American Agaric.

Pileus rather fleshy, at first ovate, then convex or expanded, *umbonate,* more or less striate on the margin, the cuticle breaking up, except on the umbo, into *reddish or reddish-brown appressed scales,* white, flesh white; lamellæ rather broad, close, free, white, narrower toward the stem and there sometimes anastomosing; stem tapering upward, *enlarged at or a little above the base,* hollow, white, annulus rather large, but thin and flabby, sometimes separating from its attachment to the stem, occasionally evanescent; spores subelliptical, uninucleate, .0003′ —.0004′ long, .0002′ — .0003′ broad.

Plant sometimes cæspitose, 3′— 5′ high; pileus 1.5′ — 4′ broad; stem 2″ — 5″ thick.

Lawns and grassy places, sometimes on decaying wood. July and August.

This species has many points of resemblance to the preceding one but it is larger, with a stouter stem and a more fleshy pileus, with much broader and more distinct scales. The stem is enlarged as in that species but the enlargement is generally at or near the base. When bruised the flesh changes color and in drying the whole plant assumes a dull brownish-red or smoky-red hue, a character by which the species may be easily distinguished. The European species, *A. Badhami* and *A. meleagris,* change color under similar circumstances, but the latter becomes red and the former saffron-red. They also differ in other respects from our plant. This has been found by Miss Banning near Baltimore, Maryland, with a pileus sometimes seven inches in diameter. She has observed that it sometimes exudes a reddish juice when cut or wounded. The striations of the margin vary in different plants, being sometimes distinct, sometimes obscure.

I have placed this species in the tribe Annulosi because of its relation to *A. cepæstipes.* It has also a close relation to the Proceri and might with almost equal propriety be placed among them. The annulus both in this and the next species occasionally loosens from the stem and becomes a movable ring.

AGARICUS NAUCINOIDES, *Pk.*

Smooth Agaric.

Pileus at first subglobose, then convex, fleshy, soft, *smooth,* rarely slightly squamulose or granular-mealy, white or smoky-white, flesh white; lamellæ rather broad, close, free, white, *slowly changing to a dingy pinkish-brown or smoky-brown color* with age or in drying; stem smooth or silky-fibrillose, equal or slightly thickened at the base, hollow, sometimes stuffed with webby filaments, white or smoky-white, annulus thick, persistent, white; spores subelliptical, uninucleate, .0003′ — .0004′ long, .0002′ — .0003′ broad.

Plant 2′ — 4′ high; pileus 1.5′ — 3.5′ broad; stem 3″ — 5″ thick.

Grassy grounds in pastures, fields and roadsides. Common. September—November.

This is a beautiful as well as a useful Agaric. It is very regular and symmetrical in shape and generally pure white in color. Its surface is usually very smooth and even, though occasionally a slight mealiness or granular roughness is developed on the disk and still more rarely a few minute scales appear. In a single instance I have seen the surface cracked into rather large thick scales, a result probably of unusually wet weather. The white color sometimes gives place to a dingy smoky-white or ashy hue. The lamellæ are at first white or cream-colored, but when old or dried they become smoky-brown or brownish tinged with pink. The stem is hollow, but, as in many other hollow-stemmed Lepiotæ, the cavity often contains webby or cottony filaments, especially when young. The plant occurs late in the season and is most often found in grassy pastures and in lawns, though sometimes it occurs in corn fields and other cultivated grounds. It is liable to be confused with white forms of the common edible mushroom, *A. campestris,* but in that species the lamellæ at first have a beautiful pink or flesh-colored hue which soon changes to a blackish-brown color. It also bears some resemblance to *A. lævis* and to *A. cretaceus,* but the former has flesh-colored and the latter brown spores. It is, however, more nearly related to its white-spored allies, *A. naucinus*, *A. Schulzeri* and *A. holosericeus*. If we may rely upon the published descriptions of these three species, the first one may be distinguished from our plant by its globose spores and granulated cuticle; the second by its ovate spores, small annulus, umbonate pileus and nauseous taste; the third by its silky-fibrillose pileus and solid stem. Some discrepancies exist in the published descriptions and figures of *A. naucinus*, to which our plant was first referred. See Report 23, p. 72, and Report 29, p. 66. In Berkeley's Outlines of British Fungology, page 94, the spores are characterized as "very large," but their shape is not given. In Cooke's Mycological Illustrations they are represented as globose, but small; in Epicrisis, page 34, they are described as globose, and in Michelia, Vol. VII, p. 229, their dimensions indicate a length greater than their breadth. It is probable, therefore, that two or more species have been confused by authors.

As an edible species, the smooth Agaric is not at all inferior to the common mushroom. Indeed, in some respects it is superior to it. It is as large, and its flesh is as thick and white, and no less tender and savory. Its keeping qualities are better, for in the common mushroom the lamellæ soon become blackish and repulsive, while in this one they retain their white color a long time, and do not become so dark-colored when they do change. It is also less liable to be infested by the larvæ of insects, and, growing as it generally does, among short grass, it is more clean and attractive in appearance. If it can be cultivated as easily as the common mushroom, it will make a very desirable and more marketable substitute for that species.

GRANULOSI.

The universal veil of the pileus and stem continuous, when ruptured forming a slight annulus.

The species of this tribe are mostly rather small, and have the pileus and stem coated with minute warts, granules or branny particles, rather than with ordinary scales. The lamellæ, in some of the species, reach the stem and are slightly attached to it. Such species serve to connect this subgenus with the following one.

AGARICUS GRANULOSUS, *Batsch.*

Granular Agaric.

Pileus thin, convex or nearly plane, sometimes almost umbonate, *rough with numerous granular or branny scales*, often radiately wrinkled, *rusty-yellow or reddish-yellow*, often growing paler with age, flesh white or reddish tinged; lamellæ close, rounded behind and usually *slightly adnexed*, white; stem equal or slightly thickened at the base, stuffed or hollow, white above the annulus, colored and adorned like the pileus below it, annulus slight, evanescent; spores, elliptical, ·00016′—·0002′ long, ·00012—·00014 broad.

Plant 1′—2·5′ high; pileus 1′—2·5′ broad; stem 1″—3″ thick.

Woods, copses and waste places. Common. August—October.

This is a small species with a short stem and granular reddish-yellow pileus, and lamellæ slightly attached to the stem, a character by which it differs from all the preceding. The annulus is very small and fugacious, being little more than the abrupt termination to the coating of the stem. The species was formerly made to include several varieties which are now regarded as distinct.

AGARICUS AMIANTHINUS, *Scop.*

Amianth Agaric.

Pileus thin, convex, subcampanulate or plane, often umbonate, *coated with numerous granular and furfuraceous scales, ochraceous-yellow*, sometimes radiately wrinkled, crenate-appendiculate on the margin; lamellæ rather broad, close, *adnate*, white or yellowish; stem rather long, slender, equal or slightly thickened at the base, stuffed or hollow, white above, colored like the pileus and floccose-squamulose below the slight evanescent annulus; spores elliptical, ·0002′—·00028′ long, about ·00016′ broad.

Plant 1·5′—4′ high; pileus 1′—1·5′ broad; stem 1″—2″ thick.

Damp, mossy ground and much decayed wood. Adirondack mountains. August and September.

This Agaric closely resembles the preceding one, of which it is sometimes regarded as a variety. It may be distinguished by its more ochraceous persistent color, appendiculate margin, elongated stem, and by its lamellæ, which are not rounded behind, but are attached to the stem by their whole breadth. The flesh is also more or less tinged with yellow. It prefers mossy, shaded ground under evergreen trees. The flocculent part of the veil is easily rubbed off and mostly disappears in drying. It is a pretty Agaric.

AGARICUS PUSILLOMYCES, *Pk.*

Small Agaric.

Pileus thin, subcampanulate or convex, subumbonate, *minutely granular or furfuraceous, whitish or brownish;* lamellæ broad, close, free, white; stem slender, equal, scarcely annulate, *rough with a granular mealiness*, colored like the pileus; spores elliptical, ·00016′—·0002′ long, ·00012′ broad.

Plant scarcely 1′ high ; pileus 2″—4″ broad ; stem about ·5″ thick.

Ground under brakes, *Pteris aquilina*. Lake Pleasant. August.

This very small Agaric is related by its granular pileus to *A. granulosus*, but its small size and different color at once distinguish it. It is apparently very rare, having been found but once.

AGARICUS CRISTATELLUS, *Pk.*

Little crested Agaric.

Pileus thin, convex, subumbonate, *minutely mealy*, especially on the margin, *white*, the disk slightly tinged with pink ; lamellæ close, rounded behind, free, white ; stem slender, whitish, hollow ; spores subelliptical, ·0002′ long.

Plant the same size as the last.

Mossy places in woods. Copake. October.

This is distinguished from the last species by its white mealy pileus, narrower lamellæ and smooth stem. The margin is sometimes appendiculate with the minute fragments of the veil. The annulus is obsolete. The white pileus and pinkish tinge of the disk suggest a resemblance in color to *A. cristatus*. The species has been detected but once.

CUTICLE OF THE PILEUS VISCID.

AGARICUS ILLINITUS, *Fr.*

White-smeared Agaric.

Pileus rather thin, soft, at first ovate, then campanulate or expanded, subumbonate, *smooth, white*, very viscid or glutinous, even or striate on the margin ; lamellæ close, free, white ; stem equal or slightly tapering upward, stuffed or hollow, viscid, white ; spores broadly elliptical, ·0002′ long, ·00016′ broad.

Plant 2′—4′ high ; pileus 1′—2·5′ broad ; stem 2″—3′ thick.

Thin or open woods. Adirondack mountains. July to September.

This is a smooth white species with the stem and pileus clothed with a clear viscid or glutinous veil. The margin of the pileus is often even, but the typical form of the species has it striate. The flesh is soft and white. The species may be distinguished from the viscid white species of Hygrophorus by the free, not adnate nor decurrent, lamellæ.

AGARICUS OBLITUS, *Pk.*

Smeared Agaric.

Pileus fleshy, convex or expanded, subumbonate, smooth or obscurely spotted or scaly from the breaking up of the veil, viscid, *alutaceous in-*

clining to tawny, the umbo generally darker; lamellæ crowded, free, whitish or yellowish, some of them forked; stem equal or slightly tapering upward, smooth at the top, *floccose* and viscid elsewhere, hollow or containing a cottony pith, annulus obsolete; spores elliptical, ·0002′—·00025′ long, ·00012′—·00016′ broad.

Plant 2′—3′ high; pileus 2′—3′ broad; stem about 3″ thick.

Frondose woods. Lowville. September.

This species is about equal in size to the preceding one, and equally viscid. It is distinguished by its colored pileus usually adorned by a few spot-like scales and by the floccose scales or filaments of the stem. It has been found but once.

In the preceding pages, a personal name added to the station of a plant indicates the collector or contributor. When no name is added to the station the plant was collected by the writer. Dates signify the time when the plant was collected, and indicate to some extent the time of its occurrence. In the monograph of the Lepiotæ they indicate the time when or during which the species has been observed. A single accent placed above and at the right of a figure should be read "inch" or "inches," according to circumstances; a double accent should be read "line" or "lines." A dash between two numbers is equivalent to the word "to."

Grateful acknowledgments are rendered to those botanists who have contributed specimens or information.

Very respectfully submitted.

CHARLES H. PECK.

ALBANY, *January* 4, 1882.

THIRTY-SIXTH ANNUAL REPORT

ON THE

NEW YORK STATE MUSEUM OF NATURAL HISTORY,

BY THE

REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW YORK.

TRANSMITTED TO THE LEGISLATURE JANUARY 12, 1883.

ALBANY:
WEED, PARSONS & COMPANY.
1883.

STATE OF NEW YORK.

No. 53.

IN SENATE.

January 12, 1883.

THIRTY-SIXTH ANNUAL REPORT

OF THE TRUSTEES OF THE STATE MUSEUM OF NATURAL HISTORY.

University of the State of New York,
Office of the Regents, Trustees of the State
Museum of Natural History,
Albany, *January* 12, 1883.

To the Legislature:

I have the honor to transmit the Thirty-sixth Annual Report of the Trustees of the State Museum of Natural History, as required by law.

H. R. PIERSON,
Chancellor of the University.

REPORT OF THE BOTANIST,

CHARLES H. PECK.

REPORT OF THE BOTANIST.

Hon. DAVID MURRAY, LL. D.,
Secretary of the Board of Regents of the University:

SIR — Since the date of my last report, specimens of one hundred and forty-two species of plants have been mounted and placed in the State Herbarium, of which sixty-eight were not previously represented therein. The specimens of the remaining species represent new forms or varieties of species before represented, or exhibit some features or characters not well shown by the older specimens. A list of the species of which specimens have been mounted is hereinafter given and marked (1).

By reason of the veto, by the Governor, of the appropriation for the reimbursement of the expenses of the Botanist for the years 1880 and 1881, it was not deemed prudent by me to advance any more money to meet these expenses. I have, therefore, been obliged to devote myself to the accomplishment of such work as could be done with the materials already on hand, and I have no additions to the Herbarium by the collecting of the Botanist, to report. This interruption of the work is to be regretted since it delays its completion and thereby increases the cost. If it shall be deemed best to continue the work of supplying deficiencies in the Herbarium and of developing a knowledge of the cryptogamic botany of our State, it is desirable that either the salary of the Botanist be increased sufficiently to enable him to meet the necessary expenses out of his own pocket, or else that an appropriation for these expenses be made in advance.

As usual, numerous specimens have been contributed to the Herbarium by various correspondents and other co-laborers in botany. A list of the contributors and of their respective contributions is marked (2).

Some of the contributed specimens represent plants that are new to the Herbarium and have not before been reported, others are rare plants from newly-discovered localities, or specimens that exhibit some peculiar variation in the species, and for these or other reasons are worthy of notice. New stations of rare plants, remarks and observations are recorded in a section marked (3).

Among the contributed specimens is a new species of edible fungus belonging to the genus Agaricus, subgenus Psalliota, and closely related to the common edible mushroom, and its near relative the horse mushroom. The mushrooms are so interesting by reason of their frequent use as an article of food, and the three species mentioned are so variable and so intimately related to each other, that in pursuance of a plan already adopted in two previous reports (in which synopses of the subgenera Amanita and Lepiota have been given), I have thought best to give a full descriptive synopsis of all our New York species of the subgenus Psalliota. In this monograph the descriptions have been revised and made more complete, the dimensions of the spores have been given and copious remarks have been added with the design of pointing out more clearly the distinguishing features of the species and of aiding in their discrimination. It is marked (4).

(1.)

PLANTS MOUNTED.

Not new to the Herbarium.

Ranunculus abortivus, *L.*
Raphanus Raphanistrum, *L.*
Brassica Sinapistrum, *Boiss.*
Viola Selkirkii, *Pursh.*
Geranium maculatum, *L.*
Acer rubrum, *L.*
Trifolium repens, *L.*
Rubus triflorus, *Rich.*
Opuntia Rafinesquii, *Engelm.*
Tiarella cordifolia, *L.*
Mitchella repens, *L.*
Viburnum nudum, *L.*
Heracleum lanatum, *Mx.*
Tanacetum vulgare, *L.*
Vaccinium corymbosum, *L.*
V. Pennsylvanicum, *Lam.*
Nyssa multiflora, *Wang.*
Scutellare galericulata, *L.*
Marrubium vulgare, *L.*
Apocynum cannabinum, *L.*
Polygonum orientale, *L.*
Fraxinus Americana, *L.*
F. pubescens, *Lam.*
Quercus alba, *L.*
Q. Prinus, *L.*
Q. rubra, *L.*
Q. coccinea, *Wang.*
Q. tinctoria, *Bart.*
Populus tremuloides, *Mx.*
P. grandidentata, *Mx.*
Potamogeton crispus, *L.*
P pusillus, *L.*
P pectinatus, *L.*
P. gramineus, *L.*
Smilax hispida, *Muhl.*
Trillium grandiflorum, *Salisb.*
Polygonatum giganteum, *Diet.*
Uvularia sessilifolia, *L.*
Heteronthera reniformis, *R. and P.*
Eleocharis tuberculosa, *R. Br.*
Scleria pauciflora, *Muhl.*
Carex stricta, *Lam.*
C. Muhlenbergii, *Schk.*
C. cephalophora, *Muhl.*
C Emmonsii, *Dew.*
C. Pennsylvanica, *Lam.*
C. tenera, *Dew.*
C. lagopodioides, *Schk.*
C. adusta, *Boott.*
C. granularis, *Muhl.*
C. gracillima, *Schw.*
C. cristata, *Schw.*
C. mirabilis, *Dew.*
C. virescens, *Muhl.*
C. vulpinoidea, *Mx.*
C. plantaginea, *Lam.*
C. laxiflora, *Lam.*
Zizania aquatica, *L.*
Stipa avenacea, *L.*
Aira flexuosa, *L.*

Bromus racemosus, *L.*
Poa trivialis, *L.*
Eragrostis pilosa, *Bv.*
Aspidium Boottii, *Tuckm.*
Osmunda cinnamomea, *L.*
Agaricus serotinus, *Schrad.*
A. æruginosus, *Curt.*
Agaricus sapidus, *Kalchb.*
Polyporus adustus, *Willd.*
P. hispidioides, *Pk.*
Trametes mollis, *Sommf.*
Corticium læve, *Pers.*
C. incarnatum, *Pers.*
C. lilacinofuscum, *B. and C.*

New to the Herbarium.

Malva crispa, *L.*
Tillæa simplex, *Nutt.*
Sedum acre, *L.*
Amarantus blitoides, *Wats.*
Sagittaria pusilla, *Nutt.*
Eragrostis Purshii, *Schrad.*
Agaricus alluviinus, *Pk.*
A. rubrotinctus, *Pk.*
A. albus, *Schæff.*
A. pascuus, *Pers.*
A. sinuatus, *Fr.*
A. fastibilis, *Fr.*
A. sulcatipes, *Pk.*
A. hærens, *Pk.*
A. tiliophilus, *Pk.*
A. nitidipes, *Pk.*
A. epimyces, *Pk.*
Hygrophorus fuligineus, *Frost.*
H. flavodiscus, *Frost.*
Marasmius salignus, *Pk.*
Polyporus immitis, *Pk.*
P. fraxinophilus, *Pk.*
Irpex crassus, *B. and C.*
I. mollis, *B. and C.*
Corticium effuscatum, *C. and E.*
Thelephora rosella, *Pk.*
Cyphella læta, *Fr.*
Phoma cucurbitale, *B. and C.*
Sphæropsis Caryæ, *C. and E.*
Discella hysteriella, *Pk.*
D. albomaculans, *Pk.*
Glœosporium fraxinea, *Pk.*
Septoria cannabina, *Pk.*
S. Sicyi, *Pk.*
Septoria Cirsii, *Niessl.*
S. Calystegiæ, *Sacc.*
S. musiva, *Pk.*
Phyllosticta Cratægi, *Pk.*
P. variabilis, *Pk.*
Protomyces macrosporus, *Ung.*
Ustilago pallida, *Schrœt.*
Acalyptospora Populi, *Pk.*
Macrosporium transversum, *Pk.*
Alternaria tenuis, *Nees.*
Ellisiella caudata, *Sacc.*
Botrytis ceratioides, *Pk.*
Dactylium dendroides, *Fr.*
Verticillium Lactarii, *Pk.*
Cercospora Tiliæ, *Pk.*
C. Lepidii, *Pk.*
C. Daturæ, *Pk.*
C. varia, *Pk.*
C. longispora, *Pk.*
Ramularia Vaccinii, *Pk.*
R. Ranunculi, *Pk.*
R. Hamamelidis, *Pk.*
R. aquatilis, *Pk.*
Asterophora Pezizæ, *Cd.*
Peziza lætiruba, *Cke.*
P. singularia, *Pk.*
Tympanis Nemopanthis, *Pk.*
Cenangium betulinum, *Pk.*
Triblidium clavæsporum, *Pk.*
Ascomyces deformans, *Berk.*
Gymnascella aurantiaca, *Pk.*
Valsa tomentella, *Pk.*
Sphærella fraxinea, *Pk.*
Venturia curviseta, *Pk.*

(2.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. L. A. Millington, Glens Falls N. Y.

Epilobium molle, *Torr.*

Miss M. Bowles Columbia, Tenn.

Polypodium incanum, *Pursh.*

C. D. Hill, Tunis, N. Y.

Calystegia Sepium, *L.*

J. F. Shoemaker, Luverne, Minn.

Oxybaphus nyctagineus, *Sweet.*

Charles E. Smith, Philadelphia, Penn.

Corema Conradii, *Torr.*

C. F. Cornelius, Willow Brook, N. Y.

Cynoglossum officinale, *L.*

Rev. Washington Rodman, Astoria, N. Y.

Agaricus Rodmani, *Pk.*

H. N. Johnson, Coeymans, N. Y.

Sagittaria pusilla, *Nutt.*
Thalictrum anemonoides, *Mx.*

W. C. Stevenson, Jr., Philadelphia, Pa.

Puccinia Myrrhis, *Schw.*

S. J. Bowman, Albany, N. Y.

Ranunculus multifidus, *Pursh.*

Hon. G. W. Clinton, Albany, N. Y.

Tillæa simplex, *Nutt.*
Amarantus blitoides. *Wats.*
Eragrostis poæoides, *Bv.*
E. Purshii, *Schrad.*

J. Howell, Arthur, Oregon,

Puccinia mirabilissima, *Pk.*
Dædalea vorax, *Hark.*
Berberis Aquifolium, *Pursh.*
Wood of Abies Douglassii.

S. B. Griswold, Albany, N. Y.

A flower of the Century plant, Agave Americana, *L.*

W. M. Canby, Wilmington, Del.

Tillæa simplex, *Nutt.*

W. Russell, Albany, N.Y.

A specimen of the Chinese "leechee nut."

E. L. Hankenson, Newark, N. Y.

Sedum reflexum, *L.*
Azolla Caroliniana, *Willd.*
Salix cordatax sericea.

Felix von Thumen, Vienna, Austria.

Agaricus geophyllus, *Sow.*
A. mitis, *Fr.*
A. sphinctrinus, *Fr.*
Polyporus cinnabarinus, *Jacq.*
P. pergamenus, *Fr.*
P. cuticularis, *Fr.*
Merulius molluscus, *Fr.*
Dædalea mollis, *Sommf.*
Craterellus sinuosus, *Fr.*
C. cornucopioides, *Fr.*
Thelephora sebacea, *Pers.*
T. fastidiosa, *Fr.*
Stereum lobatum, *Kze.*
Stereum sanguinolentum, *Fr.*
Corticium roseum, *Fr.*
C. radiosum, *Fr*
C. Juniperina, *Karst.*
Hirneola Auricula-Judæ, *Berk.*
Clavaria fistulosa, *Fr.*
C. Kunzei, *Fr.*
C. cristata, *Holmsk.*
Pistillaria quisquilaris, *Fr.*
Typhula filiformis, *Fr.*
Tremella disciformis, *Fr.*
Geaster triplex, *Jungh.*
Mycogala parietinum, *Rost.*

Æcidium Lampsanæ, *Schultz.*
Æ. Thalictri, *Grev.*
Æ. Pastinaceæ, *Rost.*
Æ. Onosmatis, *Thum.*
Æ. Lithospermi, *Thum.*
Æ. Symphyti, *Thum.*
Æ. Ligustri, *Strauss.*
Æ. Orchidearum, *Desm.*
Æ. Xylostei, *Wallr.*
Æ. Frangulæ, *Schum.*
Æ. Tussilaginis, *Pers.*
Puccinia Oxyriæ, *Fckl.*
P. Asteris, *Schw.*
P. Anemones, *Pers.*
P. Wilcoxiana, *Thum.*
P. crassivertex, *Thum.*
P. Artemisiarum, *Duby.*
P. Brachypodii, *Fckl.*
P. Morthierii, *Kornick.*
P. Cirsii, *Lasch.*
Urocystis primulicola, *Magn.*
Synchytrium Taraxaci, *DeBy.*
Ceratitium Oxyacanthæ, *Desm.*
C. laceratum, *Sow.*
Uredo cancellata, *D. and M.*
U alpestris, *Schroet.*
U. Iridis, *Duby.*
U. digitariæcola, *Thum.*
Coleosporium ochraceum, *Bon.*
C. Campanulacearum, *Fr.*
Uromyces Cacaliæ, *Lev.*
U. Lathyri, *Fckl.*
U. Iridis, *Lev.*
Cronartium ribicola, *Dietr.*
Melampsora Euphorbiæ, *Castr.*
M. Balsamiferæ, *Thum.*
M. Lini, *Tul.*
Podosphaeria biuncinata, *C. and P.*
P. Kunzei, *Lev.*
Uncinula flexuosa, *Pk.*
U. macrospora, *Pk.*
U. circinata, *C. and P.*
Calocladia penicillata, *Lev.*
Microsphaeria Viburni, *Schw.*
Erysiphe Martii, *Lev.*
E. lamprocarpa, *Lev.*
Phyllactinia guttata, *Lev.*
Sphaerotheca Castagnei, *Lev.*
S. Niesslii, *Thum.*
Stigmatea Chætomium, *Fr.*
S. confertissima, *Fckl.*
Capnodium pelliculosum, *B. and Br.*
Ceratostoma spurium, *Fr.*
Massaria fœdans, *Fr.*
M. inquinans, *Tul.*
Epichloe typhina, *Tul.*
Cryptospora nigro-annulata, *Rehm.*
Phyllachora Ulmi, *Fckl.*
Ascomyces Quercus, *Cke.*
A. cœrulescens, *Mu.*
A. alutaceus, *Thum.*
Exoascus Alni, *Fckl.*
E. Betulæ, *Fckl.*
Botryosphaeria Berengeriana, *DeNott.*

Calosphaeria tumidula, *Sacc.*
Anthostomella Yuccæ, *Thum.*
Zignoella punctiformis, *Sacc.*
Rœsleria hypogaea, *P. and T.*
Gibberella pulicaris, *Sacc.*
Coleroa Alchemillæ, *Fr.*
Ombrophila Mortheriana, *Rehm*
Bulgaria inquinans, *Fr.*
Durella macrospora, *Fckl.*
Mollisia excelsior, *Karst.*
Helotium scutula, *Karst.*
H. stigmarion, *Rehm.*
Peziza striata, *Nees.*
P. flavofuliginea, *A. and S.*
P. carpinea, *Fr.*
Hypoderma Lauri, *Duby.*
Lophium decipiens, *Karst.*
Lophodermium petiolicolum, *Fckl.*
Gnomonia errabunda, *Awd.*
Phelonitis strobilina, *Fr.*
Cladosporium fasciculare, *Fr.*
C. Martianoffianum, *Thum.*
C. diaphanum, *Thum.*
C. ampelinum, *Pass.*
Cercospora beticola, *Sacc.*
C. Solani, *Thum.*
C. Smilacis, *Thum.*
C. Thalictri, *Thum.*
C. acerina, *Hart.*
C. persica, *Sacc.*
C. Rhamni, *Fckl.*
C. Bupleuri, *Pass.*
Triposporium Juglandis, *Thum.*
Macrosporium Ravenelii, *Thum.*
M. diversisporium, *Thum.*
Fusicladium Aronici, *Sacc.*
F. dendriticum, *Wallr.*
F. orbiculatum, *Thum.*
F. pyrinum, *Bon.*
Dendryphium curtum, *B. & Br.*
Sporidesmium Macluræ, *Thum.*
Ramularia Hellebori, *Fckl.*
R. didyma, *Ung.*
R. Nemopanthis, *C. & P.*
Sporotrichum pulviniforme, *Thum.*
Isaria farinosa, *Fr.*
Fusisporium Buxi, *Fr.*
F. lacteum, *Desm.*
F. chenopodinum, *Thum.*
Cystispora foliicola, *Lib.*
C. Therryana, *Thum.*
Sphacelia segetum, *Lev.*
Glœosporium filicinum, *Rost.*
G. Sibiricum, *Thum.*
G. ampelophagum, *Sacc.*
G. affine, *Sacc.*
G. Robergei, *Desm.*
G. Pisi, *Oud*
G. paradoxum, *Sacc.*
G. sphaerelloides, *Sacc.*
Pestalozzia Planimi, *Vize.*
P. Acaciæ, *Thum.*
P. lignicola, *Cke.*
Diplodia carpinea, *Thum.*

Diplodia Incarvilleæ, *Thum.*
D. Henriquesii, *Thum.*
D. Molleriana, *Thum.*
D. fœniculina, *Thum.*
D. radiciperda, *Thum.*
Dothichiza Sorbi, *Lib.*
Micropera Pinastri, *Sacc.*
Phoma negundicola, *Thum.*
Aposphæria suffulta, *Thum.*
Asteromella vulgaris, *Thum.*
Phyllosticta Bolleana, *Thum.*
P. nuptialis, *Thum.*
Ascochyta Lactucæ, *Rostr.*
Septoria æsculina, *Thum.*
S. leguminum, *Desm.*
Myxosporium colliculosum, *Berk.*
Hendersonia Foueroyæ, *Thum.*
Henriquesia lusitanica, *P. & T.*
Heliscus Lugdunensis, *S. & T.*
Helminthosporium turcicum, *Pass.*
Fusarium globulosulum, *Pass.*
Fusidium stachydis, *Pass.*
Epidochium ambiens, *Desm.*
Botrytis cinerea, *Pers.*
Exosporium Rubi, *Nees.*
Penicillium glaucum, *Lk.*
Passalora bacilligera, *Fr.*
Stachybotrys lobulata, *Berk.*
Septosporium curvatum, *Rabh.*
Coniothecium didymum, *D. & M.*
C. Mollerianum, *Thum.*
Hydnum amicum, *Quel.*
H. septentrionale, *Fr.*
Irpex paradoxus, *Fr.*
Microcrassus candidus, *Cohn.*
Ectostroma Mulgedii, *Thum.*
E. Macluræ, *Thum.*

Prof. W. R. Dudley, Ithaca, N. Y.

Sisymbrium canescens, *Nutt.*
Draba arabisans, *Mx*
Alyssum calycinum, *L.*
Hypericum Canadense, *L.*
Dianthus Armeria, *L.*
Trifolium hybridum, *L.*
Lespedeza Stuvei, *Nutt.*
Prunus pumila, *L.*
Poterium Canadense, *Gr.*
Agrimonia parviflora, *Ait.*
Rubus neglectus, *Pk.*
Cratægus coc. v. macracantha.
Potentilla recta, *Willd.*
P. fruticosa, *L.*
P. palustris, *Scop.*
Saxifraga aizoides, *L.*
Chærophyllum procumbens, *Lam.*
Lonicera hirsuta, *Eaton.*
L. oblongifolia, *Muhl.*
L. Xylosteum, *L.*
L. Tartarica, *L.*
Scabiosa australis, *Wulf.*
Tragopogon pratensis, *L.*
Polymnia Uvedalia, *L.*
Coreopsis discoidea, *T. & G.*
Pyrola sec. v. pumila, *Paine.*
Moneses uniflora, *Gr.*
Gerardia purpurea, *L.*
Lobelia Kalmii, *L.*
Calamintha acinos, *Clærv*
Onosmodium Carolinianum, *D. C.*
Amarantus blitoides, *Wats.*
Rumex Brittanica, *L.*
Quercus Muhlenbergii, *Engelm.*
Myrica Gale, *L.*
Naias major, *All.*
Sagittaria variabilis, *Engelm.*
Aplectrum hyemale, *Nutt.*
Spiranthes Romanzoviana, *Chapm.*
Iris pseudacorus, *L.*
Juncus alp. v. insignis, *Fr.*
Elocharis rostellata, *Torr.*
Scirpus Smithii, *Gr.*
S. planifolius, *Muhl.*
S. pauciflorus, *Lightf*
Carex Steudelli, *Kunth.*
C. tetanica, *Schk.*
C. Grayii, *Carey.*
C. hirta, *L.*
C. flaccosperma, *Dew.*
C. Hitchcockiana, *Dew.*
Oryzopsis Canadensis, *Torr.*
Aira cæspitosa, *L.*
Panicum virgatum, *L.*
P. hispidum, *Muhl.*
Eragrostis capillaris, *Nees.*
Botrychium simplex, *Hitch.*
B. matricariæfolium, *Braun.*
Ophioglossum vulgatum, *L.*
Isoetes Engel. v. gracilis, *Engelm.*
Azolla Caroliniana, *Willd.*

Clarence Lown, Poughkeepsie, N. Y.

Cheilanthes vestita, *Sw.*
Asplenium ebenoides, *Scott.*
Asplenium Bradleyi, *D. C. Eaton.*

(3.)

NEW STATIONS, REMARKS AND OBSERVATIONS.

The first thirteen species noticed are new to the Herbarium, the first eleven have not before been reported.

SISYMBRIUM CANESCENS, *Nutt.*

Watkins Glen, Schuyler county. *Professor W. R. Dudley.* In the manual, this plant is reported to have been found at Lucifer Falls, Tompkins county, by J. W. Chickering, but Prof. Dudley writes that he has searched for it in vain in that locality.

MALVA CRISPA, *L.*

Roadside, Petersburgh, Rensselaer county. Escaped from gardens and sparingly naturalized.

LYCHNIS DIURNA, *L.*

With the preceding species. Also escaped from gardens and door-yards.

LONICERA XYLOSTEUM, *L.*

South Hill near Ithaca. A single shrub was found growing in a pasture where there was an abundance of *Lonicera Tartarica,* L. *Dudley.* Both species have also been introduced about Albany where the latter also takes the lead in establishing itself.

SCABIOSA AUSTRALIS, *Wulf.*

Established about Union Springs, Cayuga county. *Dudley.*

CALAMINTHA ACINOS, *Clærv.*

Roadsides near Ithaca. Introduced. *Dudley.*

AMARANTUS BLITOIDES, *Wats.*

About Albany. *G. W. Clinton.* Union Springs and Frontenac Island, Cayuga lake. *Dudley.* Introduced from the West. In its foliage it resembles the very common *Amarantus albus,* but it has long prostrate spreading stems and branches and much larger seeds than that species.

IRIS PSEUDACORUS, *L.*

Near Ithaca. Also established in two localities in alluvial soil near Cayuga lake. *Dudley.*

CAREX HIRTA, *L.*

South Hill, Ithaca. Near the Delaware, Lackawana and Western railroad and apparently introduced. *Dudley.*

CAREX FLACCOSPERMA, *Dew.*

South Hill, Ithaca. *Dudley.* A stout form of *Carex laxiflora* var. *intermedia* sometimes occurs about Albany, which resembles this species in general aspect but it is readily distinguished from it by its much longer scales and different perigynia.

ASPLENIUM EBENOIDES, *R. R. Scott.*

Near Saugerties, Ulster county. Growing on limestone rocks in company with the walking fern, *Camptosorus rhizophyllus. C. Lown.* Mr. Lown had previously found a few specimens of this extremely rare fern about four miles south-east of Poughkeepsie. In this case as in all others it was associated with *Camptosorus rhizophyllus* and *Asplenium ebeneum,* the three growing within a foot of each other. In the Saugerties locality the *Asplenium ebeneum,* though present, was several feet distant.

SEDUM ACRE, *L.*

Roadside, Petersburgh. Escaped from cultivation and sparingly naturalized.

SAGITTARIA PUSILLA, *Nutt.*

In the New York Flora this species is recorded as occurring on "muddy banks of the Hudson where the water is brackish, as at West Point and Peekskill." The habitat attributed to it in the Manual is, "inundated shores, from eastern New Jersey and Philadelphia southward near the coast." It was recently detected by *Mr. H. N. Johnson* along the river shore at Coeymans, a few miles below Albany. This is a long distance from the usual stations of the plant and far above the reach of brackish water.

THALICTRUM ANEMONOIDES, *Mx.*

Coeymans. *Johnson.* This species manifests a strong disposition to produce double flowers. A few years ago Mr. Johnson took some of the plants from their native habitat and set them in his garden. The past season they developed double flowers. The exterior sepals are green and bract-like, but the inner, which are numerous, are white and petal-like. No stamens exist in any of the flowers and no pistils in some, thus indicating that the stamens have been transformed into petals.

ALYSSUM CALYCINUM, *L.*

University grounds, Ithaca. Introduced. *Dudley.*

DRABA ARABISANS, *Mx.*

Esty Glen and shore of Cayuga lake. *Dudley.*

LEPIDIUM CAMPESTRE, *L.*

Near Ithaca. *Dudley.* Also near Coeymans and rapidly spreading over the State.

LESPEDEZA STUVEI, *Nutt.*

Ithaca. *Dudley.*

RUBUS NEGLECTUS, *Pk.*

West shore of Cayuga lake. *Dudley.*

POTENTILLA RECTA, *Willd.*

Near Moravia. *Dudley.*

AGRIMONIA PARVIFLORA, *Ait.*

Freeville and Danby, Tompkins county. *Dudley.*

CRATÆGUS COCCINEA var. MACRACANTHA.

College campus, Ithaca and Union Springs. The thorns on the specimens are four to four and a half inches long.

PRUNUS PUMILA, *L.*

South Hill, Ithaca. *Dudley.* Some of the fruit is swollen into a pale, soft body, ovate or obovate in form and pointed at the apex. This is the result of an attack by a fungus, *Exoascus Pruni,* Fckl. This fungus also attacks the fruit of the wild plum, *Prunus Americana,* Marshall. I have also seen the fruit of our wild black cherry, *Prunus serotina,* swollen in a similar manner but the cause in this case was from an attack of an insect, the larvæ of which were found in the affected fruit.

SEDUM REFLEXUM, *L.*

Thoroughly established by the roadside near Newark, Wayne county. *E. L. Hankenson.*

EPILOBIUM MOLLE, *Torr.*

Sphagnous marsh in "Cheney's woods," near Glens Falls. *Mrs. L. A. Millington.* The specimens sent are young plants and they show at the base a dense cluster of very small thick subterranean scale-like leaves, which might easily be mistaken for a cluster of small tubers. They are arranged in pairs on opposite sides of the stem, as are the leaves, and they appear whitish, thick and starchy like cotyledonous leaves. Their office is apparently similar to that of cotyledonous leaves, that is, to store up nutriment upon which the plant can draw at some subsequent period of its existence. They do not appear upon the base of old plants or those which have flowered and fruited. They are also found at the base of young plants of *Epilobium palustre.*

LONICERA OBLONGIFOLIA, *Muhl.*

Michigan Hollow, near Danby. *Dudley.*

SAXIFRAGA AIZOIDES, *L.*

Cliffs of Taghanic ravine, near Ithaca, growing with *Primula Mistassinica* and *Pinguicula vulgaris.* *Dudley.*

CHÆROPHYLLUM PROCUMBENS, *Lam.*

In "Negundo woods," near Ithaca. *Dudley.*

MITCHELLA REPENS, *L.*

Near Moravia. *M. F. Merchant,* M. D. This is the form that produces white berries, concerning which Dr. Merchant writes, "I have observed them quite closely for nearly three years and have watched their flowering two seasons and their fruiting three. The flowers are not dimorphous in this patch, but are all of one form, all having long exserted stamens and short pistils. The fruit is copious and without any tendency to change or approach the red-fruited form. The plants are thrifty and spreading and there are none of the red-fruited plants in the immediate vicinity."

COREOPSIS DISCOIDEA, *T. & G.*

Shores of Dryden lake. *Dudley.*

LOBELIA KALMII, *L.*

Farley's Point, Cayuga lake, growing along the shores and in meadows. A variety with stout stem and large flowers. *Dudley.*

PYROLA SECUNDA var. PUMILA, *Paine.*

Deep moss in a fir-tree swamp near Freeville. *Dudley.*

CALYSTEGIA SEPIUM, *L.*

Tunis, Lewis county. *C. D. Hill.* The specimen differs from the ordinary form of the plant in having the stem pubescent, the leaves narrow and the flower tube very short. The flowers appear as if they were double, but in their dried and pressed condition this appearance may be deceptive.

RUMEX BRITANNICA, *L.*

Shores of Owasco lake inlet. *Dudley.*

COREMA CONRADII, *Torr.*

Shawangunk mountains, Ulster county. *C. E. Smith.* Long Island is the only locality in the State from which this pretty little evergreen heath-like shrub has previously been reported. Judging from the localities usually ascribed to it in the manuals, this new station is much farther inland than the plant usually occurs. Its presence here gives an additional botanical interest to the Shawangunk mountains which have already furnished several very rare and interesting species of plants.

QUERCUS MUHLENBERGII, *Engelm.* (*Q. castanea*, Muhl.)

"Big Gully" near Union Springs. *Dudley.* This is the *Q. Prinus* var. *acuminata* of the Manual, *Q. acuminata*, Mx., but it is regarded by Dr. Engelmann as quite distinct from *Q. Prinus*. It is a rare species in our State, its proper home being, according to Dr. Engelmann, in the Mississippi valley. In the New York Flora it is attributed to Chemung county on the authority of Dr. Knieskern. There are two forms of it; one having lanceolate narrow leaves, five to six inches long and one and a half to two inches broad, with acuminate apex and sharp teeth; the other having broadly ovate or obovate leaves, six or seven inches long and four or five inches broad, with broader and more rounded teeth. Our specimens belong to the narrow-leaved form.

MYRICA GALE, *L.*

Locke pond, Cayuga county. *Dudley.*

SAGITTARIA VARIABILIS var. HASTATA, *Engelm.*

Summit marsh, Spencer, Tioga county. *Dudley.* The specimen shows long linear and lanceolate phyllodia; also stolons giving rise to young plants. The variations in this well-named Sagittaria are exceedingly numerous. Specimens collected at Coeymans have the leaves of variety *latifolia*, but all the flowers staminate on some plants, thus passing to the diœcious inflorescence of variety *obtusa*. Specimens of variety *gracilis* from the same place have, in some cases, all the leaves without lobes, in others some leaves are lobed, others, lobeless. A specimen of this variety from Long lake has the fruiting heads almost sessile, as in *S. heterophylla*. Specimens of variety *hastata* and variety *angustifolia* also sometimes occur with diœcious inflorescence.

NAIAS MAJOR, *All.*

Foot of Cayuga lake. A slender form with long internodes and long narrow leaves. Black lake, a shallow pond four miles below Cayuga lake. A short, stout, dark or purplish-colored leafy form with dichotomous recurved habit and slightly curved and more distinctly reticulated fruit. *Dudley.*

APLECTRUM HYEMALE, *Nutt.*

West Dryden. *Dudley.*

SCIRPUS SMITHII, *Gr.*

Shore of Cayuga lake, near Union Springs. *Dudley.*

CAREX STEUDELII, *Kunth.*

Six-mile creek, near Ithaca. *Dudley.*

ERAGROSTIS PURSHII, *Schrad.*

Waste places about Albany. *Clinton.* This southern grass is rapidly extending its range northward. Last year it was reported from Yonkers, this year it appears to be well established at Albany. It appears, like many other introduced plants, to follow the lines of the railroads which are a powerful agency in extending the distribution and range of species and in intermingling the floras of different localities. This grass closely resembles its congener, *E. pilosa,* from which it is most readily distinguished by the naked axils of its panicle.

ERAGROSTIS CAPILLARIS, *Nees.*

Ithaca. *Dudley.* A dwarf form three or four inches high.

CHEILANTHES VESTITA, *Sw.*

Two miles below Poughkeepsie on the east side of the river. It occurs also on the west side of the river, but in blasting the rocks for the West Shore railroad, its station may have been destroyed. *C. Lown.*

ASPLENIUM BRADLEYI, *D. C. Eaton.*

Shawangunk mountains, Ulster county. *Lown*

BOTRYCHIUM SIMPLEX, *Hitch.*

Danby. *Dudley.* The specimens are well developed and belong to the varieties *incisum* and *subcompositum.*

BOTRYCHIUM MATRICARIÆFOLIUM, *A. Braun.*

McLean, Tompkins county. *Dudley.* Both these species and the more rare *B. lanceolatum,* Angst., occur in Petersburgh, Rensselaer county, growing together.

ISOETES ENGLEMANNI var. GRACILIS, *Engelm.*

Locke pond. *Dudley.*

AZOLLA CAROLINIANA, *Willd.*

Foot of Cayuga lake. *Dudley.* Sodus bay. *Hankenson.* The Cayuga lake specimens are much more dense and compact in habit than the Sodus bay specimens.

(4.)

NEW YORK SPECIES OF PSALLIOTA.

"Stem annulate, distinct from the hymenophorum; lamellæ free." *Hymen, Europ.*, p. 278.

The name of the subgenus Psalliota is derived from the Greek word *Ψαλλιον* (*Ψελλιον*), a bracelet or armlet. Its application to these Agarics was probably suggested by the annulus or ring which encircles the stem. The species of this subgenus correspond in structure to those of the subgenus Lepiota in the Leucospori or white-spore series and to those of the subgenus Annularia in the Hyporhodii or pink-spore series. The tendency of the flesh in some species of Psalliota to change color when cut or bruised corresponds also to a similar tendency in some of the Lepiotæ. No corresponding subgenus has yet been established in the Dermini or ochraceous-spore series, nor in the Coprinarii or black-spore series. The Agarics belonging to the subgenus Psalliota are generally of medium or large size and rather attractive in appearance until the lamellæ have assumed the blackish color of age. They are most abundant in late summer or autumn, but in warm wet weather some of them occur early in the season also. The pileus is more or less fleshy but usually rather brittle or easily broken. It may be either smooth, fibrillose or scaly. Sometimes even individuals of the same species exhibit pilei with all these characters. The fibrillose pileus of a young individual may become either smooth or scaly with age. No species having a viscid pileus appears yet to have occurred either in our State or in Europe, though an Ohio species *A. fabaceus,* Berk., is described as having the pileus viscid when moist. The lamellæ are generally close or crowded and rounded at their inner extremity and not attached to the stem. They change color with advancing age, becoming darker as they grow older. This change of color is in great measure due to the development of the spores which cause the lamellæ to assume their own brown or blackish-brown hue. The lamellæ of young plants are generally whitish or pallid, changing in some species, directly from this color to the brown color of maturity, and in others, assuming an intervening pinkish rosy or reddish hue before taking on the final dark or sombre color. The exceptional *A. fabaceus* is described as having the lamellæ brown even in the young plant, but even in this case they are said to become darker with age. In the common mushroom, *A. campestris*, they may become moist or subdeliquescent when old, thus indicating a relationship with the inky species of the genus Coprinus. The stem is fleshy and furnished with an annulus or ring, which in some species varies in its degree of development, and in others is more or less thin and somewhat evanescent. The spores in our species are quite small, elliptical or subelliptical in outline and do not vary greatly in dimensions in the different species.

Fries groups the European species in two sections which he names "Edules," and "Minores." The former group includes the larger and more fleshy species. Several of them are edible and have long been used as an article of food. No representatives of the "Minores" have yet been found in our State. Of the "Edules" we have several species which may again be divided into two sub-groups depending on their usual habitats. Those which grow in open places, manured grounds or cultivated fields generally have a thicker, firmer pileus and a comparatively shorter stouter stem than those that grow in copses groves and woods. It is among these especially that the most notable succulent "mushrooms" are found.

SYNOPTICAL TABLE OF THE SPECIES.

Growing in fields, open places or cultivated grounds	2
2. Lamellæ at first whitish or pallid.....	3
2. Lamellæ at first pinkish or flesh colored................	A. campestris.
3. Lamellæ narrow, stem solid	A. Rodmani.
3. Lamellæ broader, stem stuffed or hollow...........	A. arvensis.
1. Growing in woods, copses or groves......................	4
4. Stem bulbous	5
4. Stem not bulbous	6
5. Pileus smooth......................................	A. silvicola.
5. Pileus squamulose..................................	A. placomyces.
6. Pileus two inches or more in diameter..........	A. silvaticus.
6. Pileus less than two inches in diameter	A. diminutivus.

AGARICUS CAMPESTRIS, *L.*

Common Mushroom. Edible Mushroom. Field Agaric.

Pileus at first hemispherical or convex, then expanded with decurved margin or nearly plane, smooth silky floccose or hairy squamulose, the margin extending beyond the lamellæ, the flesh rather thick, firm, white; lamellæ free, close, ventricose, *at first delicate pink or flesh color,* then blackish-brown, *subdeliquescent;* stem equal or slightly thickened toward the base, *stuffed,* white or whitish, nearly or quite smooth; annulus at or near the middle, more or less lacerated, sometimes evanescent; spores elliptical, .00025 to .0003 in. long, .00016 to 0002 in. broad.

Plant 2 to 4 in. high, pileus 1.5 to 4 in. or more broad, stem 4 to 8 lines thick.

Fields, pastures, manured grounds, mushroom beds, etc.

This is the well-known "edible mushroom," a species which is more extensively cultivated and more generally used as food than any other. With proper attention to its characteristic features there is no need of its being mistaken for or confused with any deleterious or poisonous species.

The pileus is nearly always regular in shape, rather thick and moderately firm, hemispherical or convex when young but usually becoming more flattened or nearly plane with age.

In its young state it is adorned with fine silky or hairy fibrils which sometimes, with advancing age, form minute persistent tufts or scales and sometimes disappear altogether, leaving the surface quite smooth. The decurved margin usually extends a little beyond the extremity of the lamellæ. The cuticle or skin is more or less readily separable from the flesh, which is white, but sometimes manifests a tendency to change color slightly when cut or bruised, and to exhibit pinkish or reddish stains. The color of the pileus in the wild form is usually white or whitish with us, but in the cultivated forms it is often ochrey-brown or pale tawny, and varieties sometimes occur in which it is brown.

The lamellæ have a very beautiful and delicate pinkish hue which is apparent as soon as they are exposed to the light by the separation of the concealing veil from the margin of the pileus. This color gradually becomes darker with advancing age until it finally changes to a dark brown or almost black hue. This character is one of the best by which to distinguish the "edible mushroom" from all other Agarics, except its nearest allies, *A. Rodmani* and *A. arvensis*. And even from these, when young, it may readily be distinguished by the primary color of its lamellæ. The subgenera Annularia and Pluteus in the pink-spore series contain species the lamellæ of which exhibit similar pinkish colors, but these never change to brown or blackish-brown as the plant matures or becomes old. In the mushroom the lamellæ are rounded at their inner extremity and not attached to the stem, so that generally in mature specimens there is a small free space between it and them.

The stem is commonly short in proportion to the breadth of the pileus, its length being, in most cases, less than the horizontal diameter of the pileus. Ordinarily it is cylindrical in shape, though now and then instances occur in which it may either be slightly thickened or slightly narrowed toward the base. The central portion of the stem is a little softer in texture than the external portion, hence it is said to be stuffed. The annulus encircles it at or near the middle. It is sometimes quite thin and flabby and is then easily torn and destroyed.

The mushroom, like many other plants which have been the subject of long and extensive cultivation, has given rise to several forms which exhibit quite marked distinctive features. These forms differ so much from the original typical form that they have received distinguishing names and are called varieties. The following are the principal ones.

Var. *albus*. White variety. Pileus smooth or slightly silky-fibrillose, white or whitish, stem short.

This is our most common variety. It occurs in unfrequented streets, waste places, cultivated grounds and especially in rich pastures where the grass is kept short. It usually appears in August and September, but sometimes in warm, wet weather it is found early in the season. A very large form with the pileus six or seven inches broad sometimes occurs.

Var. *praticola*. Meadow variety. (A. praticola, *Vitt.*) (A. pratensis, *Handbook.*) Pileus adorned with reddish scales, flesh somewhat tinged with pink. This variety must be uncommon with us. I have seen no examples of it, nor of the three following varieties :

Var. *umbrinus*. Brown variety. Pileus smooth, brown ; stem stout and minutely scaly.

Var. *rufescens*. Reddish variety. Pileus reddish, minutely scaly; lamellæ at first white ; stem elongated ; flesh turning bright red when cut or bruised. This departs so decidedly from the ordinary characters of the type, especially in the white color of the young lamellæ, that it seems to merit separation as a distinct species.

Var. *villaticus*. Villa variety. (A. villaticus, *Brond.*) Plant large, pileus scaly; stem scaly, coated or subvolvate by the inferior veil. In the Handbook of British Fungi this is placed as a variety of *A. arvensis*, but most authors regard it as a variety of *A. campestris*.

Var. *hortensis*. Garden variety. Pileus brownish or ochrey-brown, bearing hairy fibrils or minute scales. This is often cultivated and is occasionally exposed for sale in the markets of Albany.

Var. *Buchanani*. Buchanan's variety. Pileus white, smooth, depressed in the center, the margin naked ; stem stout ; annulus thin, lacerated. A rare variety sometimes occurring in mushroom beds.

Var. *elongatus*. Long-stem variety. Pileus small, smooth, convex, the margin adorned with the adherent remains of the lacerated veil ; stem long, slender, slightly thickened toward the base ; annulus slight or evanescent. This is also a variety of mushroom beds.

Var. *vaporarius*. Green-house variety. (A. vaporarius, *Vitt.*) Pileus brownish, coated with long hairs or fibrils ; stem hairy-fibrillose, becoming transversely scaly. Conservatories, cellars, etc. Not differing greatly from Var. *hortensis*.

AGARICUS RODMANI, *Pk.*

Rodman's Mushroom.

Pileus rather thick, firm, at first convex, then nearly or quite plane, with decurved margin, smooth or rarely slightly rimose-squamose on the disk, white or whitish, becoming yellowish or subochraceous on the disk, the flesh white, unchangeable; lamellæ close, *narrow*, rounded behind, free, reaching nearly or quite to the stem *at first whitish, then pink or reddish-pink*, finally blackish-brown; stem short, subequal, *solid*, whitish, smooth below the annulus, often furfuraceous or slightly mealy-squamulose above; annulus variable, thick or thin, entire or lacerated, at or below the middle of the stem; spores broadly elliptical or subglobose, generally uninucleate, .0002 to .00025 in. long, .00016 to .0002 in. broad.

Plant 2 to 3 in. high; pileus 2 to 4 in. broad; stem 6 to 10 lines thick.

Grassy ground and paved gutters. Astoria, Long Island. *Rev. W. Rodman.* Washington Park, Albany. May to July.

This species is intermediate between *A. campestris* and *A. arvensis*, from both of which it may be distinguished by its narrow lamellæ, solid stem and smaller, almost globose, spores. In size, shape of the pileus and general appearance it most resembles *A. campestris*, but in the whitish primary color of the lamellæ and in the yellowish tints which the pileus often assumes, it approaches nearer to *A. arvensis*. The pileus, which is usually smooth, occasionally manifests a tendency to crack into small areas or scales on the disk. The flesh is quite thick and firm, its thickness generally much exceeding the breadth of the lamellæ. This character, together with the solidity of the stem, indicates a disposition in the species to produce flesh rather than fruit and may make it more desirable for cultivation than the common mushroom. The length of the stem, in all the specimens I have seen, is less than the breadth of the pileus. Its shape is nearly cylindrical. The annulus is generally rather thick and sometimes projects both above and below in such a manner that it appears like a grooved band or collar surrounding the stem. In some instances it is so near the base that it suggests the idea of a volva. Its lower or exterior surface is occasionally rimose, thereby indicating another point of resemblance between this species and *A. arvensis*. In this respect, as well as in its solid stem and narrow lamellæ, it also approaches *A. augustus*, a large and showy European species which has not yet occurred with us, but which may be known by its lamellæ changing at once from the pallid color of immaturity to the dark-brown hue of age, without exhibiting any intervening pinkish tints.

The species is respectfully dedicated to its discoverer. Its edible qualities are deemed equal to those of the common edible mushroom. It has been tested by Mr. G. Rodman. It is apparently a rare species, but may be more common than is supposed, for it may possibly have been heretofore confused with the common mushroom, which it much resembles in color, the pileus being at first white or whitish, although it soon assumes yellowish tints or becomes a pale ochrey-red or russet color on the disk.

AGARICUS ARVENSIS, *Schœff.*

Horse Mushroom. Plowed-land Mushroom.

Pileus at first convex or conical-campanulate, then expanded, at first more or less floccose or mealy, then smooth, white or yellowish, flesh white; lamellæ close, free, generally broader anteriorly, *at first whitish, then pinkish,* finally blackish-brown; stem equal or slightly thickened toward the base, smooth, *hollow or stuffed* with a floccose pith; annulus rather large, thick, the lower or exterior surface often cracked in a radiate manner; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 2 to 5 in. high; pileus 3 to 5 in. or more broad; stem 4 to 10 lines thick.

Cultivated fields and pastures. Summer and autumn.

This species is so closely related to the common mushroom that it is regarded by some authors as a mere variety of it. Even the renowned Persoon is said to have written concerning it, "It appears to be only a variety of *A. campestris.*" Cordier says of it, "Distinguished from *A. campestris* by its pure white color, more pale lamellæ, its white flesh not changing color when cut or bruised, its lamellæ remaining pale a long time and not deliquescing." Fries also says that it is commonly not distinguished from *A. campestris*, but that it is diverse in some respects; its white flesh being unchangeable, its lamellæ never deliquescing, remaining a long time pale and not becoming dark red in middle age. Berkeley says of it, "A coarse, but wholesome species, often turning yellow when bruised."

In size the horse mushroom often exceeds the common mushroom, its pileus, according to the Handbook, sometimes attaining a breadth of eighteen inches and its stem a thickness of one to two inches. The white color of the pileus often becomes tinged with yellow, either with age or in drying. The pale primary color of the lamellæ, the thick, well-developed annulus and the hollow stem are available features for distinguishing it from its close allies. It is less common with us than *A. campestris,* to which in edible qualities it is very similar. A. Georgii, *Sow.,* A. pratensis, *Scop.,* A. edulis, *Krombh.,* and A. exquisitus, *Vitt.,* are synonyms.

AGARICUS SILVICOLA, *Vitt.*

Silvan Mushroom.

Pileus convex or subcampanulate, sometimes expanded or nearly plane, *smooth, shining,* white or yellowish; lamellæ close, thin, free, rounded behind, generally narrowed toward each end, *at first whitish, then pinkish,* finally blackish-brown; *stem long,* cylindrical, stuffed or hollow, white, *bulbous;* annulus either thick or thin, entire or lacerated; spores elliptical, .00025 to .00032 in. long, .00016 to .0002 in. broad.

Plant 4 to 6 in. high; pileus 3 to 6 in. broad; stem 4 to 8 lines thick.

Woods, copses and groves or along their borders. Summer and autumn.

Many authors place this as a variety of *A. campestris,* but as it occurs with us its characters are very constant and well marked and enable it to be distinguished from that species with great facility. It generally attains a larger size, has a smoother, more shining pileus, which is usually tinged with yellow, it has the primary color of the lamellæ whitish, and its stem is longer and proportionately more slender and distinctly bulbous. It has, as Fries suggests, more points of resemblance to *A. arvensis* than to *A. campestris,* but its bulbous stem at once separates it from that species. The bulb is peculiar, it being small but very abrupt and depressed or flattened like a common turnip. The pileus is thin in proportion to its breadth and is quite fragile, so that the plants must be handled with care to prevent its being broken. In mature plants the margin of the pileus sometimes has a lurid or dull purplish tint, which is probably derived from the color of the spores.

The annulus is often tinged with yellow exteriorly and is sometimes radiately rimose on the lower surface like that of *A. arvensis.* In some instances fragments of it remain attached to the margin of the pileus. The plants sometimes grow in close groups or tuft-like clusters. *A. edulis,* Berk., is given as a synonym.

It is reported to be esculent, but I have not tested it. Persons unacquainted with it should guard against confounding immature specimens of it with the white forms of the phalloid agaric, *A. phalloides,* a poisonous species which grows in similar places and bears some resemblance to it. The poisonous *A. phalloides* has a much larger bulb to the stem and the lamellæ remain permanently white or whitish, showing at no age either the pinkish or blackish-brown hues which are so conspicuous in *A. silvicola.*

AGARICUS PLACOMYCES, *Pk.*

Flat-cap Agaric.

Pileus fleshy but rather thin, at first convex or campanulate, then expanded and quite plane, *squamulose,* whitish, *the disc and minute scales brown ;* lamellæ close, free, *white, then pinkish,* finally blackish-brown; stem smooth, stuffed with a small pith slightly tapering upward, *bulbous,* whitish, the bulb stained with yellow and usually giving rise to one or two mycelioid white root-like processes; annulus large, flabby; spores elliptical, .0002 to .00025 in. long, .00016 to .00018 in. broad.

Plant 3 to 5 in. high, pileus 2 to 4 in. broad, stem 2 to 4 lines thick.

Under hemlock trees. Oneida and Knowersville. July.

This rare but beautiful Agaric is easily distinguished from its allies by the bulbous stem and the perfectly flat white surface of the expanded pileus finely adorned by numerous minute brown scales. These scales are confluent on the disk where they form a brown spot, thus imitating in appearance many species of the subgenus Lepiota. Sometimes faint radiating striæ extend from the disk to the margin of the pileus. In damp weather the large thin annulus is sometimes studded with drops of moisture of a dark color. Nothing is known concerning the edible qualities of the species. The specific name is derived from two Greek words, *πλακους*, a flat cake, and *μυκης*, a fungus, and has reference to the very flat horizontally expanded pileus.

AGARICUS SILVATICUS, *Schæff.*

Wood Agaric.

Pileus thin, at first convex or campanulate, then expanded, *gibbous or subumbonate,* fibrillose or variegated with a few thin tawny brownish or reddish-brown *spot-like appressed scales,* whitish, brownish or smoky gray, the disk sometimes tinged with red or reddish-brown, the flesh white or faintly reddish ; lamellæ thin, close, free, narrowed toward each end, reddish, then blackish-brown ; stem rather long, *equal or slightly tapering upward,* hollow, whitish ; spores elliptical, .0002 to .00025 in. long, .00016 to .0002 in. broad.

Plant 3 to 5 in. high, pileus 2 to 4 in. broad, stem 4 to 6 lines thick.

Woods. Summer and autumn. Not common.

The absence of a bulbous base to the stem and the fibrillose or feebly scaly pileus which is more or less gibbous or umbonate, serve to distinguish this from the two preceding species. Concerning its edibility, Cordier says that it is at least suspicious and that Vivian pronounces it "pernicious." Its odor is strong and its flesh when cut assumes a slight yellowish tint.

AGARICUS DIMINUTIVUS, *Pk.*

Diminutive Agaric.

Pileus thin, fragile, at first convex, then plane or centrally depressed, sometimes slightly umbonate, whitish or alutaceous, faintly spotted with small thin silky appressed brownish scales, the disk brownish or reddish-brown; lamellæ close, thin, free, ventricose, brownish-pink becoming brown, blackish-brown or black; stem equal or slightly tapering upward, stuffed or hollow, smooth, pallid; annulus thin, persistent, white; spores elliptical, .0002 in. long, .00015 to .00016 in. broad.

Plant 1.5 to 2 in. high, pileus 1 to 1.5 in. broad, stem 1 to 2 lines thick.

Woods. Croghan and Sandlake. Autumn.

This is a small but symmetrical and beautiful Agaric. It is perhaps too closely related to the preceding species of which it may possibly prove to be a mere variety or dwarf form. Its pileus is quite thin and fragile. Usually the darker or reddish hue of the disk gradually loses itself in the paler color of the margin, but sometimes the whole surface is tinged with red.

In closing this brief report my most cordial thanks are tendered to those botanists who have aided me by contributing specimens and information, and their continued co-operation in the work now well advanced is most earnestly solicited.

Respectfully submitted,

CHAS. H. PECK.

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* The titles of the first four articles were enumerated in the Thirty-seventh Report on the State Museum, but the articles were not printed. A revision of them is here given.

NEW SPECIES OF NEW YORK FUNGI.

Tricholoma infantilis.

Pileus thin, convex or nearly plane, even, minutely silky, moist in wet weather, reddish-gray, the margin when young incurved and whitish ; lamellæ subdistant, plane or slightly ventricose, often eroded on the edge, whitish ; stem short, equal or tapering upward, hollow, slightly silky, colored like the pileus or a little paler ; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 broad, often containing a shining nucleus.

Plant gregarious, pileus 4 to 12 lines broad, stem 1 to 1.5 in. high, 1 to 2 lines thick.

Gravelly soil in fields. Sandlake. June.

This is a very small species belonging to the section SERICELLA and related to *Tricholoma cœlata*, from which it is distinguished by its different color and the absence of an umbilicus from the pileus. This is sometimes papillate, and both it and the stem imbibe moisture. The latter is fleshy-fibrous, and its cavity is very small. In the larger specimens the margin of the pileus is often wavy, and the edge of the lamellæ eroded. *Tricholoma Hebeloma*, a closely allied species, may be distinguished by its more conical pileus, slender habit and smaller spores.

Clitocybe basidiosa.

Pileus rather thin, convex, then expanded and umbilicate or centrally depressed, glabrous, hygrophanous, grayish-brown and striatulate on the margin when moist, dingy-white or grayish-white when dry, flesh whitish ; lamellæ arcuate or nearly plane, thick, distant, adnate or slightly decurrent, whitish with a violaceous tint ; stem equal or slightly thickened above, glabrous, firm, whitish or pallid ; spores subglobose, .00016 to .0002 in. long, basidia elongated, .0024 in. long, bearing spicules .0003 in. long.

Plant single or cæspitose, 1 to 2 in. high, pileus 16 to 18 lines broad, stem 1 to 2 lines thick.

Woods and swamps. Sandlake and East Berne. August.

The numerous narrow and elongated basidia of this species are suggestive of the specific name. The plant is also easily recognized by the peculiar, pale, livid gray hue of the pileus, and the slight violaceous tint of the lamellæ. The pileus is rarely slightly umbonate. When dry both it and the stem have a slight silky appearance. The stem is usually solid, and slightly enlarged as it enters the pileus. The species should be placed among the ORBIFORMES, though in some respects it approaches *C. obbatus* and *C. Calathus*. It also has the aspect of some species of Hygrophorus.

Collybia alcalinolens.

Pileus thin, subconical or convex, then expanded, slightly silky-fibrillose, shining, hygrophanous, dark watery-brown when moist, grayish-brown or cinereous when dry, flesh white; lamellæ rather broad, subdistant, adnate or emarginate with a decurrent tooth, whitish; stem equal, glabrous, slightly pruinose above, hollow, shining, whitish; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 in. broad.

Plant gregarious, 1 to 2 in. high, pileus 8 to 18 lines broad, stem 1 to 3 lines thick.

Thin woods and bushy places. Sandlake. June and July.

This species has a peculiar odor resembling that of chloride of lime. In this respect it is similar to some species of Mycena. The plant is quite variable. The disk of the pileus is now elevated, now depressed, sometimes darker than the rest, sometimes canescent with short, grayish fibrils. The margin is quite thin and sometimes striatulate when moist. Occasionally it surpasses the lamellæ, which in the expanded plant are often ventricose. The stem is sometimes irregular or compressed. The species belongs to the section TEPHROPHANÆ, and is apparently allied to *A. laceratus.*

Leptonia albinella.

Pileus submembranous, subconical or convex, subumbilicate, furfuraceous or minutely squamulose, hygrophanous, whitish and striatulate on the margin when moist, white and shining when dry; lamellæ narrow, close, adnexed, white, becoming incarnate; stem equal, hollow, glabrous or slightly pruinose, whitish; spores angular, .00045 to .0005 in. long, .0003 to .00035 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 line thick.

Bushy places. Sandlake. July.

Readily distinguished from its allies by its white color. *Leptonia assularum* B. & C. differs in having an umbonate virgate pileus with a dark center. *Nolanea delicatulus* is a more slender, delicate plant with a smoother pileus and not at all umbilicate.

Psilocybe castanella.

Pileus thin, at first convex or subconical, then expanded or slightly depressed, glabrous, hygrophanous, chestnut-colored or umber-brown and striatulate on the margin when moist, pale-alutaceous when dry, flesh a little paler than the surface of the pileus ; lamellæ close, adnate or slightly rounded behind, at first pale-brown, then purplish-brown ; stem equal, flexuous, hollow or stuffed with a whitish pith, slightly silky-fibrillose, brownish or subrufescent with a white mycelium at the base ; spores purplish-brown, .0003 to .00032 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus 4 to 8 lines broad, stem .5 to 1 line thick.

Rich grassy ground by roadsides. Sandlake. June.

The species appears to be closely allied to *Agaricus squalens*, which may be distinguished by its lurid color, decurrent lamellæ and ferruginous-brown spores. Moreover its habitat is unlike that of our plant. In very wet weather both the pileus and lamellæ sometimes have a watery-brown appearance, and then the striations of the former sometimes extend to the disk, which is rarely slightly umbonate. In drying, the moisture first disappears from the center of the pileus. The young pileus is usually chestnut-colored, and its margin and the stem are adorned with a few whitish fibrils.

Psilocybe fuscofulva.

Pileus thin, convex or subcampanulate, subumbonate, glabrous, hygrophanous, dark watery-brown and striatulate on the margin when moist, subochraceous when dry ; lamellæ rather broad, moderately close, adnate, subventricose, purplish-brown ; stem slender, flexuous, stuffed, slightly silky, reddish-brown ; spores purplish-brown, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant 1.5 to 2.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among sphagnum. Karner. October.

The species is related to *Agaricus atrobrunneus*, but its smaller size and differently colored lamellæ will serve to distinguish it.

Dermocybe simulans.

Pileus fleshy, thin, convex, then expanded, at first grayish-violaceous and silky-fibrillose, then pale-cinereous, often tinged with yellow or brownish-yellow on the disk, flesh pale-violaceous or pale-cinereous; lamellæ rather broad, subventricose, rounded behind, moderately close, violaceous, becoming cinnamon-colored; stem short, equal or slightly thickened at the base, silky-fibrillose, shining, stuffed or hollow, violaceous, becoming whitish or pallid; spores subglobose or broadly elliptical, .0003 to .00035 in. long, .00025 to .0003 in. broad.

Plant 1 to 2 in. high, pileus 6 to 18 lines broad, stem about 2 lines thick.

Woods. Sandlake. July.

The colors of this species are so similar to those of *Inoloma albo-violacea* that the plant might at first sight be mistaken for a small form of that species, but its small size, thin pileus and short, hollow stem afford distinguishing characters.

Telamonia gracilis.

Pileus thin, convex or campanulate, then expanded, umbonate, floccose-fibrillose, hygrophanous, watery-brown or sordid-chestnut when moist, whitened on the margin with grayish fibrils, subochraceous or tawny-cinnamon when dry; lamellæ thin, subdistant, becoming subventricose, ferruginous-brown, becoming cinnamon-colored; stem long, slender, flexuous, fibrillose and slightly floccose-scaly, with a slight whitish evanescent annulus, colored like the pileus; spores elliptical, uninucleate, .0004 to .00045 in. long, .00025 to .0003 in. broad.

Plant 2 to 4 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among moss and sphagnum in marshes. Sandlake. August.

The umbo is small and sometimes acute, rarely obsolete. The dry pileus varies much in color, it being tawny, cinnamon, subochraceous or grayish-cervine. The young lamellæ also vary from ferruginous-brown to reddish-umber and sometimes have a slight violaceous tint. The species is apparently related to *Telamonia flexipes* and *T. rigida*, but the first is described as having the stem violaceous at the apex, and the second as having the pileus glabrous, both of which characters are wanting in our plant.

Variety *brevipes* has the stem but 1 or 2 inches long. It occurs on decaying wood.

Hydrocybe præpallens.

Pileus fleshy, thin, subconical, then convex or expanded, glabrous, hygrophanous, watery-brown or chestnut-colored when moist, pale-ochraceous when dry, flesh yellowish-white; lamellæ close, lanceolate, rounded behind or slightly emarginate, reddish-umber, becoming tawny-cinnamon; stem short, equal, subflexuous, fleshy-fibrous, slightly silky, pallid or brownish; spores subelliptical, .0003 to .0004 in. long, .00025 in. broad.

Plant 1 to 3 in. high, pileus 6 to 18 lines broad, stem 2 to 4 lines thick.

Naked soil in woods. Sandlake. June.

The difference in the color of the moist pileus and the dry one is quite decided. The change from the dark-chestnut color of the one to the dingy-yellow or isabelline hue of the other is very noticeable and suggestive of the specific name. The fibrils of the veil are grayish-white, and the margin, which is at first incurved, is apt to become wavy, irregular or reflexed in large specimens. In the thinner specimens it is striatulate when moist. The lamellæ are narrowed toward the outer extremity and when young are of a peculiar reddish-brown or dark-ferruginous hue. The stem is usually hollow, but apparently from the erosion of insects. The species belongs to the section FIRMIORES.

Hygrophorus minutulus.

Pileus thin, submembranous, convex or expanded, subumbilicate, bright-red, viscid and distantly striatulate when moist, pale-red or yellowish when dry; lamellæ rather broad, subdistant, sometimes ventricose, adnate or subsinuate and slightly decurrent, whitish, tinged with red or yellow; stem short, slender, fragile, solid, viscid when moist, yellowish; spores narrowly elliptical, .0004 in. long, .0002 in. broad, borne on slender spicules which are .0002 to .0003 in. long.

Plant 6 to 10 lines high, pileus 3 to 5 lines broad, stem scarcely half a line thick.

Grassy ground in pastures. Sandlake. July.

This is one of our smallest species of Hygrophorus. Its nearest relative is *H. aurantiacoluteus* B. & C., from which the viscid pileus and stem and less decurrent lamellæ separate it. As the moisture escapes from the fresh plant the pileus becomes paler and assumes a slight silky appearance, but often the thoroughly dried specimens resume the bright-red hue of the fresh plant. Often several basidia grow from the same filament.

Russula albida.

Pileus thin, broadly convex, then expanded or depressed, glabrous, viscid when moist, white, sometimes slightly tinged with yellow, the spreading or erect margin at length slightly and narrowly tuberculose-striate, flesh white ; lamellæ adnate or subdecurrent, moderately close, some of them forked near the stem, white, the interspaces venose ; stem nearly equal, glabrous, stuffed or hollow, white ; spores white, minutely rough, subglobose or broadly elliptical, .00035 in. long, .0003 in. broad ; taste mild or bitterish.

Plant 1 to 3 in. high, pileus 1 to 2.5 in. broad, stem 3 to 6 lines thick.

Woods. Sandlake. July and August.

This Russula belongs to the section FRAGILES. It may be distinguished from white forms of *Russula emetica* by its adnate or slightly decurrent lamellæ and by its milder taste.

Russula uncialis.

Pileus thin, convex, then expanded or centrally depressed, viscid when moist, glabrous or very minutely rivulose-granulose, red or pinkish-red, the margin obscurely tuberculose-striate, flesh white ; lamellæ moderately close, narrowed toward the stem, at which a few of them are sometimes forked, adnate or slightly emarginate, white, the interspaces venose ; stem equal, glabrous, stuffed or spongy within, white or reddish ; spores white, globose, rough, .0003 to .00035 in. in diameter ; taste mild.

Plant 1 to 1.5 in. high, pileus 1 to 1.5 in. broad, stem 2 to 4 lines thick.

Thin woods. Sandlake. June and July.

A small species, generally about 1 in. high, with the pileus about the same in breadth. Like the preceding species, to which it is closely related, it belongs to the white-spored group of the section FRAGILES, a group to which Europe contributes but a single mild species. The color of the pileus is nearly uniform and generally a pale-red or pinkish-red. The lamellæ in the fresh plant are white, but in the dried specimens they are pallid.

Hydnum albidum.

Pileus fleshy, thin, convex or nearly plane, subpruinose, white, flesh white; aculei white; stem short, solid, central or eccentric, white; spores subglobose, .00016 to .0002 in. in diameter.

Plant 1 to 2 in. high, pileus 1 to 1.5 in. broad, stem 3 to 5 lines thick.

Ground in thin woods. Sandlake. June and July.

The species is closely allied to *Hydnum repandum*, with which it appears to have been united by some authors, but its small size, white color and smaller spores appear to me to make it worthy of specific distinction. It is quite unlike *Hydnum candidum*. The pileus is often irregular and lobed on the margin.

Clavaria divaricata.

Stem short, small, whitish, much branched; branches widely spreading, terete, even or slighty longitudinally wrinkled, more or less curved, pale-ochraceous, the ultimate ones tapering outward and terminating in one or more acute points; spores .0004 to .0005 in. long, .0002 to .00025 broad.

Tufts 2 to 4 in. high, and nearly as broad.

Woods. Sandlake. August.

This is a rare species, and is remarkable for and easily distinguished by its divaricate branches which give to the plant a very spreading, straggling aspect.

The following species were described in the Thirty-second Report of the State Museum, but owing to the limited edition and the incomplete manner (without plates) of the publication of that Report it has been thought best to repeat these descriptions here.

Clitocybe subhirta.

Pileus at first convex, then expanded or slightly depressed, tomentose-hairy and pale-yellow or buff, becoming subglabrous and whitish with age, the margin incurved; lamellæ close, adnate or decurrent, whitish or pale yellow; stem subequal, stuffed or hollow, whitish; spores subglobose or broadly elliptical, .0002 to .00025 in. long.

Plant 1 to 3 in. high, pileus 1 to 3 in. broad, stem 2 to 4 lines thick.

Woods. Brewerton. September.

The species belongs to the section Disciformes, and is near *Clitocybe subalutacea*, but distinct from it and all its other allies by the hairy pileus. Sometimes the hairs are more conspicuous on the margin than on the disk.

Collybia cremoracea.

Pileus thin, submembranous, convex or campanulate, obtuse, dry, slightly silky, dingy cream-colored, the margin sometimes wavy; lamellæ broad, ventricose, emarginate, with a decurrent tooth, whitish; stem slender, equal, slightly silky, stuffed or hollow, pallid or colored like the pileus; spores subglobose or broadly elliptical, about .00025 in. long, .0002 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods. Gansevoort. August.

The species belongs to the section Lævipedes.

Collybia hygrophoroides.

Plate 2. Figs. 23–26.

Pileus subconical, then convex or expanded, smooth, hygrophanous, reddish or yellowish-red when moist, paler when dry; lamellæ broad, subdistant, rounded behind or deeply emarginate, eroded on the edge, whitish; stem subequal, striate, stuffed or hollow, whitish; spores subelliptical, .0002 to .00025 in. long, .00016 in. broad.

Plant subcæspitose, 2 to 3 inches high, pileus 1 to 1.5 inches broad, stem 2 to 3 lines thick.

Decaying half-buried wood. Knowersville. May.

The young pileus resembles that of *Hygrophorus conicus*, both in shape and in color. When dry it becomes pallid or subochraceous. The species belongs to the section Tephrophanæ.

Mycena luteopallens.

Pileus submembranous, convex, glabrous, striatulate on the margin when moist, bright-yellow, paler when dry; lamellæ subdistant, slightly arcuate, yellow; stem equal or slightly tapering upward, smooth, hollow, yellow, furnished at the base with yellow hairs and fibrils.

Plant scattered or cæspitose, about 2 in. high, pileus 3 to 6 lines broad, stem about 1 line thick.

Among fallen leaves in woods. Adirondack mountains. August.

It resembles *Hygrophorus parvulus* in color, but it is readily distinguished from that species by its subcæspitose mode of growth, its proportionately longer and more slender stem and the yellow hairs at its base.

Inocybe eutheloides.

Pileus thin, broadly conical or campanulate, becoming nearly plane with age, distinctly umbonate, silky-fibrillose, more or less rimose, varying in color from grayish-cervine to chestnut-brown, the disk sometimes squamulose, the flesh white; lamellæ moderately close, rather broad, ventricose, narrowed or rounded behind, adnexed, whitish, becoming ferruginous-brown, white and denticulate on the edge; stem equal, subflexuous, solid, fibrillose, whitish or pallid; spores even, uninucleate, subelliptical, .00035 to .00045 in. long, .00025 to .0003 in. broad.

Plant 1 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Woods. Brewerton. September.

The species belongs to the section Rimosi. It agrees in many respects with the description of *Inocybe eutheles*, but differs in the character of the lamellæ, which are rather abruptly and strongly narrowed behind and adnexed, not adnate. The spores are longer than in that species and the plant is destitute of a farinaceous odor. The pileus is sometimes scarcely rimose and it varies considerably in color. The stem is decidedly paler than the pileus.

Inocybe infelix.

Pileus thin, subcampanulate, then convex or expanded, umbonate, fibrillose-squamulose, umber-brown or grayish-brown, flesh white; lamellæ close, rather broad, ventricose, emarginate, whitish, becoming ferruginous-brown; stem equal, solid, silky-fibrillose, whitish or pallid, pruinose above; spores oblong, even, .00045 to .0006 in. long, .0002 to .00025 in. broad.

Plant 1 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Sterile or mossy ground. Indian lake, Adirondack mountains. August.

The species belongs to the section Laceri. The pileus is more lacerated in wet weather than in dry, and generally becomes paler with age. A small form, variety *brevipes*, has the pileus 4 to 6 lines broad and but slightly umbonate, and the stem scarcely more than half an inch long. Sometimes the stem is white above and darker toward the base. The long narrow spores constitute a marked feature of the species.

Myxacium amarum.

Pileus thin, convex or nearly plane, often irregular, smooth, glutinous, yellow, the disk often tinged with red, the margin whitish, flesh white, taste very bitter; lamellæ close, rounded behind, whitish, becoming ochraceous-cinnamon; stem soft, viscid in wet weather, solid, tapering upward, whitish, clothed with silky white fibrils; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus about 1 in. broad, stem 2 to 4 lines thick.

Under spruce and balsam trees. Adirondack mountains. August.

The very bitter taste is suggestive of the specific name. The stem is scarcely viscid except in wet weather.

Russula compacta *Frost MS.*

"Pileus white, firm, solid, cracked in age, sometimes tinged with red or yellow or both in spots, turning up in age, seldom depressed; lamellæ very white, almost free, not forked or dimidiate, becoming brown when bruised or dry; stem solid, white, even, smooth; flesh at first white, then brownish."

Pileus fleshy, compact, convex or centrally depressed, whitish, sometimes tinged with red or yellow, becoming reddish-alutaceous or dingy-ochraceous with age, the margin thin, even, incurved when young; lamellæ rather broad, subdistant, nearly free, some of them forked, a few dimidiate, white, becoming brown with age or where bruised; stem short, equal, firm, solid, white, changing color like the pileus; spores subglobose, nearly even, .00035 in. in diameter.

Plant 2 to 4 in. high, pileus 3 to 5 in. broad, stem 8 to 12 lines thick.

Open woods. Sandlake and Brewerton. August and September.

The late Mr. C. C. Frost sent me specimens and manuscript descriptions of a few species of fungi collected by him in Vermont. He gave names to those which he considered new species, and it gives me pleasure to adopt his names whenever it is rendered possible by the discovery of the species within our limits. The plant here described does not fully agree with his manuscript description, which I have quoted, but it approaches so near an agreement that there cannot be much doubt of the specific identity of the two plants. In our plant the pileus is sometimes split on the margin. The change in the color of the pileus and stem is nearly the same, but the lamellæ sometimes become darker than either. When drying, the specimens emit a strong and very disagreeable odor. The species belongs to the section COMPACTÆ.

Russula flavida *Frost MS.*

"Pileus fleshy, convex, slightly depressed, unpolished, bright-yellow; lamellæ white, adnate, turning cinereous: stem yellow, solid, white at the extreme apex."

Pileus fleshy, convex, then plane or slightly depressed, yellow, becoming paler with age, flesh white, taste mild, the margin at first even, then tuberculate-striate; lamellæ nearly simple, subdistant and broader before, adnate, white, the interspaces venose; stem short, equal or tapering upward, firm, glabrous, solid or merely spongy within, yellow; spores globose, .00025 to .0003 in. in diameter.

Plant gregarious, 1 to 2 in. high, pileus 1 to 2 in. broad, stem 4 to 6 lines thick.

Grassy places in copses and open woods. Sandlake. July.

The species belongs to the section RIGIDÆ. The pileus is dry and sometimes slightly mealy or granular. When young it is bright-yellow, but it fades with age and sometimes becomes white on the margin.

Boletus rubinellus.

Plate 2. Figs. 20-22.

Pileus at first broadly conical or subconvex, then nearly plane, subtomentose, red, becoming paler with age; tubes convex, adnate or slightly depressed about the stem, rather large, subrotund, pinkish-red, becoming sordid-yellow; stem equal, smooth, yellow with reddish stains; spores oblong-fusiform, .0004 to .0005 in. long, .00016 broad.

Plant about 2 in. high, pileus 1 to 2 in. broad, stem 2 to 3 lines thick.

Woods. Gansevoort. August.

Apparently related to *B. rubinus*, and also resembling *B. piperatus*, but the stem is differently colored, and I have not found the pileus at all viscid.

Tremella subcarnosa.

Small, tufted,. compressed, irregular, wavy or contorted, subcarnose, externally gelatinous, whitish or pinkish-alutaceous, becoming brownish-incarnate and somewhat glaucous when dry; spores obovate, pointed at one end, .0002 to .0003 in. long, .00016 broad.

Tufts 2 to 4 lines high and about as broad.

Decaying wood of deciduous trees. Carlisle. June.

The affinities of this fungus are doubtful. It is provisionally referred to the genus Tremella, although the central part of the substance is fleshy rather than gelatinous. The plants revive on the application of moisture and when moist are somewhat tremelloid. The tufts form beautiful little rosettes.

Grandinia membranacea *P. & C., n. sp.*

Effused, thin, membranaceous, whitish or subalutaceous, sometimes slightly tinged with greenish-yellow or olivaceous; granules numerous, crowded, unequal; spores broadly elliptical or subglobose, slightly rough, .00025 to .0003 in. long.

Much decayed wood, leaves, etc. Tonawanda. G. W. CLINTON.

Apparently related in texture to *G. papillosa*, but differing in color and in its even, not rimose, hymenium.

Phoma callospora *P. & C., n. sp.*

Perithecia small, scattered, slightly prominent, covered by the epidermis, black; spores oblong or cylindrical, obtuse, straight or curved, containing 3 to 5 nuclei, .0006 to .0008 in. long, .0002 to .00025 broad.

Dead stems of Polygonum. Buffalo. October. G. W. CLINTON.

Phoma cornina.

Perithecia numerous, not crowded, minute, nearly covered by the stellately ruptured epidermis, black, opening by a large pore; spores oblong, obtuse, .0012 to .0016 in. long, .0005 to .00055 broad.

Dead branches of green osier, *Cornus circinata*. Sprakers. June.

This and the preceding species are erroneously referred to the genus Sphæropsis in the Thirty-second Report.

Sphæropsis typhina.

Perithecia scattered, subconical, slightly prominent, often compressed; spores fusiform, pointed at each end, colored, .0006 in. long, .00016 broad.

Dead leaves of *Typha latifolia*. Sprakers. June.

The fusiform pointed spores constitute a noticeable character in this species.

Protomyces conglomeratus.

Spores imbedded in the tissues of the stems of the host plant, large, globose, colored, .0016 to .002 in. in diameter, aggregated in groups or clusters and forming small protuberances or tubercles on the dry stems.

Common saltwort, *Salicornia herbacea.* Syracuse. September.

The species is remarkable for the large size of the spores and their clustered mode of growth.

Periconia albiceps.

Plate 1, figs. 8–11.

Stems short, .02 to .03 in. high, equal or slightly tapering upward, black; head subglobose, white; spores oblong or subfusiform, colorless, .0003 to .0006 in. long.

Dead stems of balmony, *Chelone glabra.* Sandlake. May.

The stems of the fungus are composed of compacted filaments, and I have followed the English mycologists in referring the species to the genus Periconia. It is Sporocybe of Bonorden.

Gonatobotryum tenellum.

Patches thinly effused, subolivaceous; flocci subtufted, erect, slender, simple or rarely branched, not nodulose-inflated, septate, brown, .006 to .014 in. high; spores in verticels of 2 to 4 at the septa, oblong, simple, subfuliginous, .00045 to .0005 in. long, .00016 to .0002 broad.

Dead stems of stoneroot, *Collinsonia Canadensis.* North Greenbush. October.

By reason of the equal, not nodulose, flocci the species does not well agree with the character of the genus. Because of the colored flocci it would go no better in Arthrinium.

Ramularia effusa.

Hypophyllous, often occupying the whole lower surface of the leaf, whitish; spores very variable, globose, obovate-elliptical, oblong or cylindrical, .00016 to .0011 in. long, .00016 to .0002 broad, sometimes uniseptate.

Living leaves of black huckleberry, *Gaylussacia resinosa.* Karner. July.

Sometimes all the leaves on a branch have the lower surface whitened by this fungus.

Ramularia albomaculata.

Spots suborbicular, 2 to 3 lines in diameter, sometimes confluent, pale yellowish-green on the upper surface, becoming purplish or brown with age, whitened by the fungus below; spores oblong or elliptical, generally binucleate, .0003 to .0004 in. long, .00016 broad.

Living leaves of hickory, *Carya alba.* Albany and Greenbush. June and July.

Sometimes the spots are angular, being limited by the veinlets of the leaf. In this species and in the next one I have not seen the spores septate, but suspecting that the nuclei indicate septa in more mature specimens, I have referred the species to this genus for the present. They may belong rather to Cylindrium or Fusidium.

Ramularia angustata.

Spots small, orbicular, sometimes confluent, pale greenish-yellow, becoming reddish-brown or brown, frosted on the lower surface by the fungus; flocci minute; spores narrowly fusiform or subcylindrical, .0003 to .0004 in. long, about .0001 in. broad, often containing two or three nucleoli.

Living leaves of pinxter plant, *Azalea nudiflora.* Central Bridge and Carlisle. June.

The very narrow spores suggest the specific name.

Ramularia lineola.

Spots suborbicular, sometimes confluent, brown, concentrically lineolate; flocci obscure, tufted, hypophyllous; spores slender, cylindrical, obtuse, .0005 to .0008 in. long, often uniseptate.

Living leaves of dandelion, *Taraxacum, Dens-leonis.* Greenbush. July.

The fungus is so minute that it is scarcely visible to the naked eye.

Sporotrichum larvicolum.

Flocci slender, simple or branched, forming a continuous, dense, soft, white or yellowish stratum coating the whole matrix; spores abundant, minute, globose, .00008 to .00012 in. broad.

Dead larvæ lying on the ground under alders. Adirondack mountains. July.

The larvæ were very numerous and, but for the check imposed upon the increase of the species by the attacks of this fungus, they would probably in a short time have completely defoliated all the alders in that locality. In some specimens the fungus spores were so abundant that the surface of the stratum had a pulverulent appearance.

Acremonium flexuosum.

Plate 1, figs. 16–18.

Flocci procumbent, interwoven, branched, forming a thin, soft, tomentose, white or cream-colored stratum, the branches widely divergent, sometimes opposite, narrowed and flexuous toward the tips and bearing scattered, alternate spicules or sporophores; spores oval or elliptical, .0005 to .0008 in. long, .0003 to 0005 in. broad.

Decaying wood. Griffins, Delaware county. September.

From *Acremonium album* it differs in habit and habitat, as well as in the flexuous terminal portions of the flocci and their alternate pointed spicules; and from *Acremonium alternatum* it is distinguished by its elliptical spores.

Sepedonium brunneum.

Effused, pulverulent, brown; spores globose, rough, .0008 to .001 in. in diameter.

Decaying fungi. Gansevoort. August.

This is similar in habit to *Sepedonium chrysospermum*, from which its dark snuff-brown spores distinguish it. Like that fungus, this is also probably a mere state of some species of Hypomyces.

Morchella angusticeps.

Plate 1, figs 19–21.

Pileus narrowly conical or oblong-conical, acute or subobtuse, 1 to 2 in. long, its diameter at the base scarcely exceeding that of the stem, pale-buff or cream-colored, adnate, sometimes a little curved, the costæ longitudinal, anastomosing or connected by transverse veins; stem subequal, hollow, furfuraceous, even or sometimes marked by irregular longitudinal ridges and furrows, whitish, about equal to the pileus in length; asci cylindrical; spores elliptical, yellowish, .0008 to .001 in. long, .0005 to .0007 broad.

Borders of woods and open places. Albany and Karner. April and May. Edible.

This morel is perhaps too closely related to *Morchella conica* Pers., but if that species is correctly represented in Mycographia, plate 81, fig. 315, our plant is easily distinguished by its much more narrow pileus, which scarcely exceeds the stem in diameter. The paraphyses of that species are also represented as filiform, and are described (l. c. p. 182) as thickened above. In our plant I find no such paraphyses, but instead of them there are oblong or subclavate bodies much shorter than the asci, but nearly as broad. They are often filled with large, unequal, crowded nuclei, and appear more like undeveloped asci than like ordinary paraphyses. The interior surface of the stem is scurfy like the exterior.

Peziza orbicularis.

Plate 2, figs. 4–6.

Receptacle 8 to 12 lines broad, sessile, appressed to the matrix, nearly plane, orbicular or sometimes irregular, externally whitish or subolivaceous and slightly gelatinous when moist, the disk reddish-brown or chestnut-colored; asci cylindrical; spores uniseriate, elliptical, .0009 to .0011 in. long, .00045 to .0005 in. broad; paraphyses filiform, thickened at the tips, brownish.

Wet, much decayed wood. Brewerton and Guilderland. September and October.

The spores usually contain one or two large nuclei. The contrast between the dark color of the disk and the light color of the external surface is quite noticeable. The flattened orbicular form of the receptacle when growing on smooth surfaces suggests the specific name. In the Thirty-second Report both this and the next species were referred to the genus Bulgaria under the respective names *B. bicolor* and *B. deligata*, but upon further observation their affinities appear to me to bring them in the genus Peziza, subgenus Discina, in consequence of which I am obliged to change the names.

Peziza leucobasis.

Plate 2, figs. 1–3.

Receptacles 1 to 3 lines broad, scattered or crowded, plane or convex, sessile, scarcely margined, purplish-black when moist, black and more or less angular when dry, surrounded at the base by dense whitish filaments; asci cylindrical, .01 to .012 in. long, .0009 to .001 broad; spores uniseriate, elliptical, even, binucleate, subhyaline, .001 to .0013 in. long, .0006 to .0007 broad; paraphyses numerous, filiform, septate, colored, slightly thickened above.

Wet, decaying hemlock wood. Catskill mountains. July.

The numerous white filaments that appear to bind the receptacles to the matrix, constitute a marked feature in this species and suggest the specific name.

Peziza longipila.

Plate 2, figs. 15–19.

Receptacle small, .014 to .02 in. broad, narrowed below into a short stem, densely clothed with long, rigid, erect, septate, tawny-brown hairs, the uppermost .01 to .014 in. long, .0003 broad, the disk whitish, concealed in the dry plant by the hairs of the margin; asci cylindrical, .0025 to .003 in. long, .00025 to .0003 broad; spores oblong or subfusiform, straight or slightly curved, colorless, .0003 to .0004 in. long, .00008 to .00012 broad.

Dead stems of *Eupatorium maculatum*. Adirondack mountains. July.

Apparently near *P. relicina* Fr., but that is described as sessile and of a bay color.

This and the next following species belong to the subgenus Dasyscypha.

Peziza urticina.

Receptacle minute, .007 to .014 in. broad, sessile, subglobose, almost hyaline, and with the mouth connivent when moist, whitish and pulverulent-hairy when dry; asci subfusiform; spores crowded or biseriate, fusiform, .0004 to .0005 in. long; paraphyses filiform.

Dead stems of nettles, *Laportea Canadensis*. Catskill mountains. July.

When moist the hairs are appressed and the cups appear longitudinally striate. When dry the disk is generally concealed. The plants are so small that they appear to the naked eye like minute white grains.

Helotium fraternum.

Plate 1, figs. 12–14.

Receptacle small, ½ to 1 line broad, stipitate, the disk plane or slightly concave, pallid or reddish-yellow, becoming more concave and dull-red in drying, the stem about equal in length to the diameter of the receptacle; asci clavate or subcylindrical, .003 to .004 in. long, .0004 to .0005 broad; spores crowded or biseriate, subcylindrical, .00065 to .0008 in. long, .00016 to .0002 broad; paraphyses numerous, filiform, scarcely thickened at the tips.

Petioles and midveins of fallen leaves of maple, *Acer saccharinum*. Adirondack mountains. July.

Pezicula minuta.

Receptacle minute, .009 to .017 in. broad, numerous, scattered or two or three crowded together, attached to the matrix by a minute point, grayish, pulverulent, the margin obtuse or obsolete, the disk plane or convex, subochraceous; asci oblong-clavate; spores crowded.

oblong-elliptical, colorless, .0008 to .001 in. long; paraphyses filiform, thickened at the apex.

Dead stems of hobble bush, *Viburnum lantanoides.* Catskill mountains. July.

Ascophanus tetraonalis.

Receptacle sessile, 1 to 2 lines broad. externally cinereous, the margin sometimes wavy or flexuous, the disk blackish or blackish-brown; asci cylindrical, truncate at the apex; spores uniseriate, elliptical, smooth, colorless, .0006 to .0007 in. long, .0003 broad.

Excrement of partridges or ruffed grouse. Catskill mountains. July.

The receptacles are about equal in size to those of *Ascophanus gallinaceus,* which has a similar habitat, but a paler color and shorter spores. This and the next following species were erroneously referred to the genus Peziza in the Thirty-second Report.

Ascophanus humosoides.

Receptacles small, scarcely more than half a line broad, sessile, scattered or crowded, orange-colored inclining to vinous-red, the disk plane or slightly convex, slightly margined; asci short, cylindrical or clavate; spores crowded or elliptical, even, .0008 to .001 in. long, .0005 broad; paraphyses filiform, slightly thickened above.

Excrement of some wild animal. Catskill mountains. July.

The cups are attached to the matrix by a few white filaments.

Patellaria pusilla.

Receptacle small, .014 to .028 in. broad, sessile, slightly margined, black, the disk plane or convex when moist, slightly concave when dry; asci clavate; spores crowded or biseriate, subclavate, .00065 to .0008 in. long, .0001 to .00012 broad. six to eight nucleate; paraphyses numerous, filiform.

Decaying beech wood. Catskill mountains. July.

The spores are similar in shape to those of *P. atrata.* They are extremely narrow and probably become five to seven-septate when mature.

Acanthostigma scopula.

Perithecia small, .006 to .008 in. broad, subglobose, very black, bristly with short, rigid, divergent black hairs or setæ which are .003 to .005 in. long, .00016 to .0002 thick; asci lanceolate or subclavate; spores crowded or biseriate, elongated, gradually narrowed toward each end, straight or slightly curved, multinucleate, at length obscurely multiseptate, greenish-yellow, .0025 to .003 in. long, .00012 to .00016 broad.

Decaying wood of hemlock. Adirondack mountains. August.

This is *Sphæria scopula* C. & P. in the Thirty-second Report. It is here referred to the genus Acanthostigma because of the shape of the spores. From *A. Clintonii* it may be distinguished by its larger perithecia and longer spores.

Lasiosphæria intricata.

Perithecia scattered or crowded, somewhat elongated, .025 to .035 in. long, .018 to .02 broad, generally narrowed toward the base, obtuse, subfragile, tomentose-hairy, brown or blackish-brown; subiculum very thin or none; asci slender, elongated, .005 to .008 in. long, .0004 to .0005 broad; spores crowded, linear, curved or flexuous, greenish-yellow, .0016 to .0025 in. long, .00016 to .0002 broad.

Decaying wood and leaves in damp places. Sandlake.

The species belongs to the section LEPTOSPORA. The perithecia, though small, resemble in shape those of *Bombardia fasciculata*. The minute papillate ostiolum is often concealed by the tomentum of the perithecia. This is composed of intricate, matted, slender, septate, brown filaments, which, by their soft, tomentose character, readily distinguish this species from the related *L. strigosa*, *L. hispida*, *L. hirsuta*, etc.

Herpotrichia leucostoma.

Perithecia small, .012 to .018 in. broad, numerous, somewhat crowded, subglobose, seated upon or involved in a blackish-brown tomentum, the ostiola naked, not prominent, whitish when moist, grayish or sordid when dry; asci cylindrical or subclavate, .006 to .008 in. long, .0004 to .0006 broad; spores crowded or biseriate, oblong-fusiform, at first uniseptate, constricted at the septum and containing two or three nuclei in each cell, then three to five-septate, colorless, .0015 to .002 in. long, .0003 to .00035 in. broad.

Dead branches of mountain maple-bush, *Acer spicatum*. Catskill mountains. September.

The whitish ostiola constitute a marked feature in this species. It is distinguished from *Herpotrichia Schiedermayeriana* Fckl. by its much smaller perithecia, and the more numerous septa of the spores. I have observed no globose appendages at the ends of the spores in our plant. The threads of the subiculum are obscurely septate and sometimes slightly branched. The more classical name "leucostoma" is here substituted for "albidostoma."

Zignoella humulina.

Perithecia small, .011 to .014 in. broad, depressed-hemispherical, slightly sunk in the matrix, subglabrous, black, with a minute papillate ostiolum ; asci cylindrical, .0025 to .003 in. long, .0003 to .0004 in. broad ; spores uniseriate or obliquely monostichous, elliptical, four-locular, appearing obscurely triseptate, colorless, .0005 to .0006 in. long, .00025 to .0003 in. broad.

Dead stems of hops, *Humulus lupulus.* Carlisle. June.

The spores are not distinctly triseptate, and the species apparently belongs to the subgenus Zignoina. The perithecia have a dull, squalid, unpolished or subscabrous appearance.

Acrospermum album.

Perithecia elongated, subfusiform, somewhat compressed, pointed at the apex, narrowed below into a short, terete, stem-like base, white ; spores very long, filiform.

Dead stems of spikenard, *Aralia racemosa.* Catskill mountains. July.

This resembles *A. compressum* in size, but it is at once distinguished from that and other related species by its persistently white color.

ADDITIONS, REMARKS AND OBSERVATIONS.

The first fourteen species of the following list are additions to our State flora, and have not before been reported.

Hieracium Pilosella *L.*

Door yards. Aurora, Cayuga county. *C. Atwood, M. D.*

This plant has been introduced from Europe, and is yet scarce and perhaps not thoroughly established.

Atriplex hortensis *L.*

Roadsides. High Bridge, Onondaga county. *Mrs. S. M. Rust* and *Mrs. C. Barnes.*

Probably a stray from cultivation, and perhaps not permanently established.

Amanita pantherina *DC.*

Thin woods. Sandlake, Rensselaer county. July.

According to the figure and description of this species the pileus is brown or brownish, but in all our specimens it is white or merely tinged with brown on the disk. In other respects they agree so well with the description that there can be no doubt of their specific identity. They afford a striking instance of the tendency in some of our American forms to depart from the color of the European plant. The different character of its volva will distinguish it from white forms of *A. muscarius*, and the warts on the pileus and annulus on the stem will separate it from *A. nivalis.*

Clitocybe phyllophila *Fr.*

Among fallen leaves in woods. Karner. September.

Clitocybe pithyophila *Fr.*

Among fallen leaves in woods. Sandlake.

Collybia aquosa *Bull.*

Among sphagnum. Karner. October.

In our specimens the lamellæ, instead of being rounded behind and free, according to the description of the species, are adnate or slightly decurrent. They are therefore designated, variety *adnatifolia.* In drying, the moisture escapes from the thicker, central part of the pileus sooner than from the thin margin.

Mycena clavicularis *Fr.*

Under pine trees. Sandlake. June.

Psilocybe bullaceus *Fr.*

Manured ground. Sandlake. July.

Lactarius cilicioides *Fr.*

Sandy soil. West Albany. October.

A small, white form with very sparse milk.

Hygrophorus virgineus *Fr.*

Roadsides and grassy fields. Sandlake. August.

Cortinarius cinnabarinus *Fr.*

Thin woods and bushy places. Sandlake. June.

Hydnum scrobiculatum *Fr.*

Woods. Sandlake. July.

The disk is sometimes very uneven with irregular prominences.

Valsa sepincola *Fckl.*

Dead stems of raspberry, *Rubus strigosus.* Karner. October.

Cryptospora Betulæ *Tul.*

Dead bark and twigs of white birch, *Betula populifolia.* Karner. October.

Ampelopsis quinquefolia *Mx.*

Specimens sometimes occur with some of the leaves trifoliate.

Geranium Robertianum *L.*

A white-flowered form. Isley island, Sodus Bay, Wayne county. *F. W. Battershall.*

Galium lanceolatum *Torr.*

A white-flowered form. Sandlake.

Rhodora Canadensis *L.*

Thirteenth pond, Johnsburgh, Warren county. May. *Mrs. I. B. Sampson.*

The specimens are in flower, but the leaves had not yet developed. The original herbarium specimens bear old capsules, but no leaves, so that leaf-bearing specimens are yet wanting. I do not find this plant recorded in any of the local catalogues of plants of various parts of the State, and Dr. Torrey admitted it in the New York Flora with the following explanatory remark: "I am not quite certain that I have received specimens of this plant from within the limits of the State; but it doubtless grows in some of the northern counties." The result has proved the accuracy of his supposition, but the plant is evidently rare in our State.

Potamogeton pauciflorus *Pursh.*

A peculiar form of this species occurs in Glass lake, Rensselaer county. The stems are 1 to 2 feet long, the spikes numerous and axillary and the foliage of a dull-brownish or reddish-brown color, quite unlike the ordinary bright-green hue of the species.

Pogonia affinis *Aust.*

In a swamp near Tappantown, Rockland county. June. *E. F. Smith.*

Juncus Canadensis var. **coarctatus** *Engelm.*

This plant sometimes has the flower heads wholly or in part changed to enlarged leafy buds, or rather galls, for they are produced by the attacks of insects.

Clitopilus Noveboracensis *Pk.*

Sometimes the pileus is dark-brown, much darker than in the typical form. There is also a variety *tomentosipes*, in which the stem is clothed with a whitish or grayish hairy tomentum. The plants are also sometimes cæspitose. Sandlake. July.

Entoloma strictior var. **isabellinus** *Pk.*

Pileus, when moist, of a watery isabelline hue and striatulate on the margin, when dry, whitish or pale straw color.

Sphagnous marshes. Sandlake. August.

Clavaria amethystina *Bull.*

Woods. Sandlake. July.

Sometimes the color inclines to a grayish-violaceous hue. Both the small sparsely branched and the abundantly branched forms occur.

Dacrymyces conglobatus *Pk.*

Plate 1, figs. 1–4.

In the Thirty-second Report, this was provisionally referred to the genus Dacrymyces. It is apparently *Peziza rubella* Pers., and *Om-*

brophila rubella Quel., which is figured in Tabulæ Analyticæ Fungorum, by M. Patouillard, Fasc. 11, fig. 157. But unless it shall yet be found to have an ascigerous form it can not well be received in either of these genera. It may yet be necessary to institute a genus for its reception.

Glomerularia Corni *Pk.*

Plate 2, figs. 10–14.

This species was originally found on leaves of dwarf cornel, *Cornus Canadensis.* It also occurs in the Adirondack forests on leaves of fly honeysuckle, *Lonicera ciliata.* On this host it forms extensive patches, sometimes occupying nearly the whole leaf, and its filaments are more highly developed. It has been described in Sylloge Fungorum, vol. IV, p. 10.

Geoglossum irregulare *Pk.*

Plate 1, figs. 5–7.

A description of this fungus is contained in Revue Mycologique, 1882, p. 212, under the name *Geoglossum vitellinum* Bres. Owing to the imperfect publication of the Thirty-second Report it will be better to adopt this later name.

Helotium vibrisseoides *Pk.*

Plate 2, figs. 7–9.

In 1881 this fungus was published under the name of *Vibrissea turbinata* Phillips. It is *Gorgoniceps turbinata* Sacc., a name which should be adopted for the reason already given.

NEW YORK SPECIES OF PAXILLUS.

PAXILLUS *Fr.*

"Hymenophorum continuous with the stem, decurrent. Lamellæ membranous, scissile, somewhat branched and often anastomosing behind, *distinct from the hymenophorum and easily separable from it.* Spores sordid-whitish or ferruginous.

"*Fleshy putrescent fungi continuously and gradually unfolding and expanding from an involute margin.*" *Hymen. Europ.*, p. 400.

The species of this genus are related to the Agarici on one hand, and to the Boleti on the other. The important distinguishing character is afforded by the lamellæ, which are easily and smoothly separable from the pileus, just as the tubes of a Boletus are from the pileus that supports them. This relationship between the Paxilli and Boleti is still further indicated by the anastomosing of the lamellæ, which in one species, *Paxillus porosus*, is carried to such an extent that the hymenium is as distinctly porous as it is in some Boleti. On the other hand, the close relationship that exists between this genus and the genus Agaricus may be inferred from the fact that *Agaricus personatus* and *A. cinerascens* are still retained by Fries among the Agarici, although he makes the remark that they belong rather to the Paxilli. In the second edition of Epicrisis he has modified the diagnosis of the genus, and at the same time admitted that it is "not yet correctly defined." Neither is the limitation of the two tribes into which he divides the species very satisfactory, for a central stem and sordid spores, characters assigned to Lepista, are not always associated together, nor are ferruginous spores found only in species with the stem commonly lateral or eccentric. It has, therefore, seemed best to me, for the present, to refer to this genus such species only as have the spores colored and the separable lamellæ more or less branched, crisped or anastomosing. This reduces our species to five, three of which are found also in Europe. They grow chiefly in woods and occur in the latter part of summer and in autumn. The separable character of the hymenium can only be ascertained by the mutilation of a specimen.

Synopsis of the Species.

1 Hymenium clearly lamellate.	2.
2 Pileus white, stem present.	P. simulans.
2 Pileus colored.	3.
3 Stem glabrous.	P. involutus.
3 Stem densely hairy.	P. atrotomentosus.
3 Stem none.	P. panuoides.
1 Hymenium wholly porous.	P. porosus.

Paxillus simulans *n. sp.*

Simulating Paxillus.

Pileus broadly convex, expanded or subinfundibuliform, compact, subglabrous, even or somewhat scabrous-pustulate, *white or whitish*. the involute margin often tomentose-hairy, flesh white ; lamellæ close, forked, crisped near the stem, adnate or decurrent, *white, then ochraceous-yellow tinged with salmon color ;* stem *central*, short, firm, equal, *stuffed or hollow*, pubescent, white : spores pale ochraceous-yellow, subglobose or broadly elliptical, .0002 to .0003 in. long, .0002 in. broad.

Plant 1 to 3 in. high, pileus 2 to 4 in. broad, stem 6 to 12 lines thick.

In thin woods. Sandlake. July. Rare.

A large species externally resembling *Lactarius vellereus*, and perhaps hitherto confused with it, but easily distinguished from it by the absence of a milky juice and by the lamellæ which are crisped near the base and which soon assume a peculiar salmon-yellow hue, which also appears in the spores when collected on white paper. This change of color begins in the crisped portion near the stem and gradually advances toward the outer extremity. In the dried specimens the lamellæ are ochraceous-brown and they have the edge more or less beaded with white granules. They are often forked near the outer extremity as well as toward the inner. The length of the stem sometimes scarcely exceeds its breadth. In but a single instance was it eccentric, and in that case the pileus was lobed and irregular. The surface of the pileus is sometimes roughened with minute pustules or papillæ and sometimes has a pitted appearance. Rarely the margin is obscurely zonate. The taste is bitterish and unpleasant, and some times the plant emits a subacid odor. It is a singular species.

Paxillus involutus *Fr.*

Involute Paxillus.

Pileus compact, convex or expanded, sometimes centrally depressed, glabrous, *viscid when moist*, varying in color from grayish or sordid-buff to ferruginous or brownish-ochraceous, the margin at first *strongly involute and covered with a dense grayish tomentose villosity*, flesh grayish-white or pallid; lamellæ close, decurrent, branched and anastomosing behind, whitish, then yellowish or subferruginous, becoming reddish-brown or fuscous where cut or bruised, the interspaces venose; stem equal or slightly thickened at the base, central or sometimes eccentric, glabrous, solid: spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 2 to 4 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

In woods on the ground and on decaying wood. Common in the Adirondack mountains and not rare in the mixed woods of all our hilly districts. August to November.

This species is said, by Fries and other authors, to be edible but I have not tested its edible qualities. It is said to be held in high estimation as an article of food in Russia. It is somewhat solitary in its mode of growth and prefers a soil chiefly composed of vegetable mold. Damp shaded mossy banks and deep hemlock and spruce woods are favorite habitats for it. It sometimes grows on much decayed stumps and old prostrate trunks of trees. In such cases the stem is sometimes eccentric, but when growing on the ground it is almost always central, though Fries places the species in the tribe Tapinia. Neither do the spores of our plant agree well with the dimensions given in the Handbook of British Fungi, still it does not appear to me to be specifically distinct. The pileus is generally regular in outline and, when expanded, bears upon its margin short, distant and somewhat irregular striations. The hairiness of the margin is more distinct in the young plants. The color of the pileus is not very decided, being somewhat variable, and a peculiar mixture of gray, ochraceous, ferruginous and brown. The surface is sometimes opaque, sometimes shining. The lamellæ and often other parts of the plant change color when cut or bruised. In drying, the lamellæ of this and also of the preceding and the two following species frequently assume a smoky-brown or blackish hue.

. **Paxillus atrotomentosus** *Fr.*

Dark-Downy Paxillus.

Pileus compact, convex, then expanded or centrally depressed, varying from subglabrous to scabrous-granulose, sometimes tomentose-hairy on the disk, often minutely rivulose, ochraceous-red, ferruginous-brown or reddish-brown, the margin sometimes paler, flesh white; lamellæ close, rather broad, adnate or slightly decurrent, somewhat branched and anastomosing at the base, pale creamy-yellow, the interspaces venose; stem firm, stout, solid, eccentric or lateral, rarely central, *densely tomentose-hairy, dark-brown;* spores elliptical, .0002 to .00025 in. long, .00016 in. broad.

Plant single or cæspitose, 3 to 6 in. high, pileus 3 to 6 in. broad, stem 6 to 15 lines thick.

Ground and much decayed wood of pine and hemlock. Helderberg mountains, Sandlake and Gansevoort. August.

This is a large species, easily recognized by the dark-brown coarsely velvety or densely hairy coat of the stem, which character is suggestive of the specific name. It sometimes grows in large tufts, and then the pileus is frequently irregular by reason of mutual compression. In wet weather the pileus is moist and sometimes obscurely mottled with dark spots. Occasionally it emits an unpleasant, dirt-like odor.

Paxillus panuoides *Fr.*

Panus-like Paxillus. Stemless Paxillus. Pale Paxillus.

Pileus fleshy, thin, convex or nearly plane, *sessile* or resupinate, sometimes narrowed behind into a short stem-like base, pubescent or glabrous, yellowish or brownish-yellow; lamellæ narrow, close, anastomosing and crisped at the base, yellow; spores subglobose or broadly elliptical, .00018 to .0002 in. long, .00013 to .00016 in. broad.

Pileus 1 to 2 in. broad and long.

Decaying wood, usually of pine and hemlock. Albany, Maryland and Adirondack mountains. August and September.

This is our only sessile species. It grows in open places as well as in woods. It is quite variable in Europe, according to the description in Hymenomycetes Europæi. A form with a whitish pileus (*Agaricus lamellirugis* Dec. Fl., *Merulius crispus* Turpin) is the variety B of Fries. A form with a resupinate cup-like pileus, variety *pezizoides*, is his variety C, and *Gomphus pezizoides* Pers. The Handbook also describes a form with a white pileus tinged with violet. Of these, only the var. *pezizoides* has been found here. It occurs in the Adirondack mountain region.

Paxillus porosus *Berk.*

Porous Paxillus.

Pileus fleshy, broadly convex or expanded, often irregular or subreniform, dry, glabrous or minutely tomentose, reddish-brown, sometimes ochraceous-brown, flesh yellowish; lamellæ *wholly connected by numerous narrow transverse branches, causing the hymenium to consist of large angular pores*, decurrent, bright-yellow; stem short, hard, eccentric or lateral, generally reticulated above, colored like the pileus; spores elliptical, uninucleate, .00035 to .00045 in. long, .00024 to .00032 in. broad.

Plant 1 to 2 in. high, pileus 2 to 4 in. broad, stem 3 to 6 lines thick.

Ground in woods and open places. Sandlake, Oneida, Brewerton and Catskill mountains. August.

A singular species remarkable for its boletoid or porous hymenium. It is thus far peculiar to this country. Its spores, according to Prof. A. P. Morgan, are bright-yellow. They are larger than in any of our other species of Paxillus. The author of the species makes the remark that "without examining the fructification it might be taken for a *Boletus*." It is admitted that the spores are broader in proportion to their length than are the spores of most Boleti, but in *Boletus strobilaceus* the spores make quite as wide a departure from the ordinary form. In fresh specimens the radiating lamellæ are distinguishable, being somewhat broader than the connecting veins or branches, but in the dried specimens this difference is so obscured that the hymenium appears in no manner to differ from that of some of the large and angular-pored Boleti. Indeed this same kind of union of radiating lamellæ is discernible in the hymenium of *Boletus paluster* in which the spores approach much more closely to the ordinary form of Boletus spores; from which it may be inferred that if the species just described is a genuine Paxillus, the distinction between that genus and the genus Boletus is very slight indeed, consisting in this case merely in the eccentric or lateral stem.

The stem in *P. porosus* is most often lateral, and at the point of its insertion there is generally an excavation in the margin of the pileus which gives to it a somewhat reniform outline. The pileus has been described as "viscid when moist," but I have never observed this character in our plant. The color of the hymenium in the fresh plant is a bright chrome-yellow. The fresh plant sometimes emits a disagreeable, dirt-like odor.

Paxillus strigosus Pk. does not have the lamellæ branched or crisped at the base, and it has been omitted. It probably belongs rather to Inocybe.

NEW YORK SPECIES OF CANTHARELLUS.

CANTHARELLUS *Adans.*

"Hymenophorum continuous with the stem, descending unchanged into the trama. Lamellæ thick, fleshy or waxy, *fold-like*, subbranched, *obtuse on the edge*. Spores white. *Fleshy or membranous putrescent fungi destitute of a veil.*" *Hymen. Europ.*, p. 455.

The prominent distinguishing characters of this genus are the fleshy substance of the plants and the obtuse edge of the lamellæ. In nearly all the species these are either dichotomously branched or reticulately or anastomosingly connected with each other. They are so narrow and thick in some species that they appear more like folds or veins than like lamellæ. When a transverse section of the lamellæ is made their fold-like character becomes apparent. The hymenial substance covers the entire lower surface of the pileus and hence the interspaces are fertile as well as the lamellæ. Although some species formerly included in this genus are now excluded, it still contains some incongruous members. Thus *C. floccosus* bears very little general resemblance to *C. infundibuliformis*, and *C. aurantiacus* looks strangely by the side of *C. pruinosus*. It has, therefore, seemed best to group the species into subgenera or sections according to their natural affinities.

In the section AGARICOIDES the pileus is fleshy and is rapidly narrowed below into the stem. The lamellæ are very thin and close, resembling much those of the Agarici, but they are obtuse on the edge and regularly and sometimes repeatedly dichotomous. The species of this group are closely related to the Agarici.

In EUCANTHARELLUS the pileus is narrowly obconic and tapers downward gradually till it is lost in the short stem. Sometimes the spreading margin makes it trumpet-shaped. The lamellæ are very narrow, thick and abundantly and reticulately branched.

In CANTHARELLUS (proper) the pileus is fleshy, glabrous and more horizontally expanded, and the lamellæ are broader, more distant, and more sparingly branched than in the preceding group. The stem is also longer in proportion to the size of the pileus.

In LEPTOCANTHARELLUS the pileus is fleshy but thin, and floccose, fibrillose or pruinose. It is umbilicate, centrally depressed or funnel-shaped and sometimes pervious. The lamellæ are mostly sparingly branched, and the slender stem is generally hollow. The last three groups contain species which have their respective counterparts or corresponding species in the genus Craterellus.

In the diagnosis of the genus which I have quoted the spores are said to be white, but in some of our species they vary considerably from this color.

The name of the genus is derived from *cantharus*, a kind of drinking cup.

Synopsis of the Species.

1 Lamellæ thin, regularly and repeatedly dichotomous.	2.
2 Lamellæ orange-colored.	C. aurantiacus.
2 Lamellæ white.	C. umbonatus.
1 Lamellæ thick, simple or irregularly branched.	3.
3 Stem very short, hairy or subtomentose.	4.
4 Pileus floccose-scaly.	C. floccosus.
4 Pileus glabrous.	C. brevipes.
3 Stem longer, glabrous.	5.
5 Pileus glabrous, yellow.	6.
6 Pileus thick, stem solid.	C. cibarius.
6 Pileus thin, stem stuffed or hollow.	C. minor.
5 Pileus glabrous, cinnabar-red.	C. cinnabarinus.
5 Pileus not glabrous.	7.
7 Floccose or fibrillose.	8.
8 Dingy-yellow or brownish.	C. infundibuliformis.
8 Dingy-cinereous or blackish-cinereous.	C. cinereus.
7 Pruinose.	C. pruinosus.

AGARICOIDES. *Lamellæ thin, close, regularly dichotomous.*

Cantharellus aurantiacus *Wulf.*

Orange Chantarelle. False Chantarelle.

Pileus fleshy, thick, soft, minutely tomentose, plane or slightly depressed, *yellowish-orange*, often tinged with smoky-brown, the margin decurved or involute, flesh whitish or yellowish; lamellæ narrow, close, repeatedly forked, decurrent, *bright-orange*, sometimes yellowish; stem equal or slightly tapering upward, solid, subconcolorous; spores subelliptical, .00025 to .0003 in. long, .00016 to .00018 broad.

Plant 2 to 3 in. high, pileus 1 to 3 in. broad, stem 2 to 5 lines thick.

Ground and much decayed wood. Common in hilly and mountainous districts. July to October.

The bright color and regular bifurcations of the lamellæ render this a beautiful and easily recognizable species. The pileus is somewhat obconic in outline, but it is subject to some variation in color. The disk is often tinged with brown or smoky-brown and sometimes the whole surface fades to a dingy buff-red. The margin is sometimes a pale yellow or even whitish, and a form with whitish lamellæ has occurred in a sphagnous marsh near Albany. In the European plant the stem is said occasionally to become black. This form is *Merulius nigripes* Pers. The wholly white European form has not been found here.

The species is pronounced "poisonous" by some authors, and "scarcely esculent" by Rev. M. J. Berkeley. It is especially fond of a damp mossy soil filled with vegetable mold, and it sometimes occurs quite late in the season.

Cantharellus umbonatus *Fr.*

Umbonate Chantarelle.

Pileus thin, soft, at first convex, then plane or centrally depressed, umbonate, papillate or even, smooth or flocculose-silky, rarely minutely squamulose, bluish-cinereous, grayish-brown or blackish-cinereous, the flesh white; lamellæ thin, straight, more or less decurrent, dichotomous, white; stem equal or slightly tapering upward, solid or stuffed, generally slightly silky, villose or white-tomentose at the base, whitish or tinged with the color of the pileus; spores white, oblong or subfusiform, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant 1 to 6 in. high, pileus 6 to 12 lines broad, stem 2 to 4 lines thick.

Damp, mossy ground in woods and open places. North Elba, Catskill mountains and Karner. August to October.

Var. *subcæruleus.* Pileus bluish or bluish-gray, silky and shining.

Var. *dichotomus.* Pileus even or the umbo reduced to a mere papilla, grayish-brown.

Var. *brevior.* Pileus as in variety *dichotomus*, but the stem very short, about 1 inch long, equal and scarcely silky.

This is a variable species. All the descriptions of the European plant which have come under my notice speak of it as umbonate, and some emphasize this character and describe it as "always persistent," "unchanged," etc. In the American plant it is often entirely absent, and when present it is generally a mere acute papilla.

If of fair size in the fresh plant it becomes small and inconspicuous in the dried specimen. In consequence of this disagreement between the American plant and the descriptions of the European, the former was supposed to be distinct, and described in the Twenty-third Report as *Cantharellus dichotomus;* but from its close agreement in other respects I am now of the opinion that our plant is but a variety of the European, and I have modified the description of the species so that it may include our forms. I have looked in vain for a description of the spore characters of this species in any of the European works at my command. These characters here given are taken from the American plant. Should they be found to differ from those of the European plant, it will be necessary to keep our plant distinct. In ours, as in the European, wounds of the flesh and lamellæ often change to a reddish hue, and sometimes the lamellæ assume this color in drying. When growing among mosses the stem is often considerably elongated, and the white tomentum at its base so closely invests the surrounding mosses that it is difficult to pluck the plant entire without taking with it a tuft of moss.

EUCANTHARELLUS. *Lamellæ very narrow, thick, vein-like, abundantly branching or anastomosing; pileus narrowly obconic; stem very short.*

The species of this section appear thus far to be peculiar to America.

Cantharellus floccosus *Schw.*

Floccose Chantarelle.

Pileus fleshy, firm, *elongated funnel-form or trumpet shape, floccose-scaly, ochraceous-yellow;* lamellæ thick, narrow, close, abundantly anastomosing above, long-decurrent and subparallel below, *subconcolorous;* stem very short, thick, sometimes with a flexuous, root-like prolongation; spores ochraceous, narrowly elliptical, .0005 to .0006 in. long, .0003 in. broad, with an oblique apiculus at one end.

Plant 2 to 5 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

Woods and their borders. Common. July and August.

This is our largest species of Chantarelle. At first the plant is almost cylindrical, it being scarcely broader at the top than at the base; but it gradually expands above and spreads its margin until it becomes trumpet-shaped. The pileus of the young plant is sometimes tinged with orange. The scales are sometimes thick and persistent, and again thin and subevanescent. The pileus is depressed or umbilicate at a very early age, and it frequently becomes pervious when mature. The interstices or reticulations formed by the anastomosing of the lamellæ are in some specimens as broad as long, in others much longer than broad. The stem is often, though not always, somewhat tomentose.

Cantharellus brevipes *Pk.*

Short-stemmed Chantarelle.

Pileus fleshy, narrowly obconic, *glabrous, alutaceous or dingy cream color*, the thin margin erect, often irregular and lobed, tinged with lilac in the young plant, flesh soft, whitish ; lamellæ numerous, nearly straight on the margin, abundantly anastomosing below, *pale umber tinged with lilac ;* stem short, tomentose-pubescent, solid, cinereus, often tapering downwards ; spores yellowish, oblong-elliptical, uninucleate, .0004 to .0005 in. long, .0002 in. broad.

Plant subcæspitose, 3 to 4 in. high, pileus 2 to 3 in. broad, stem 4 to 6 lines thick.

Woods. Ballston. July.

This is a very rare species. It occurred in very limited quantity in 1879, in the locality mentioned, and has not since been found. It is smaller than *C. floccosus*, more cæspitose in its mode of growth, and with thinner lamellæ. The thick fleshy pileus is neither pervious nor umbilicate and but slightly depressed.

CANTHARELLUS. *Lamellæ narrow, distant, sparingly and irregularly branched or anastomosing ; pileus fleshy, glabrous ; stem fleshy, generally solid.*

Cantharellus cibarius *Fr.*

Edible Chantarelle.

Pileus fleshy, firm, convex, then expanded or slightly depressed, glabrous, *yellow*, the margin at first involute, then spreading, often wavy or irregular, flesh white within ; lamellæ narrow, thick, distant, decurrent, somewhat branched or anastomosing, yellow ; stem firm, glabrous, *solid, yellow*, sometimes tapering downwards ; spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant 1.5 to 4 in. high, pileus 1.5 to 4 in. broad, stem 3 to 6 lines thick.

Woods, copses and open places. Common. June to September.

The edible Chantarelle, though often irregular in shape, is beautiful in color. The whole plant is of a clear, rich egg-yellow hue. and this, with its solid stem, renders its identification easy. The American plant scarcely varies in color, but in Europe there is said to be a white variety of it. When old, the margin first begins to dry, and soon assumes a dull reddish-brown hue. The flesh both of the pileus and stem is white, though often tinged with yellow near the surface. Some authors attribute to it an odor like that of ripe apricots, but I have not been able to detect any decided odor in it. The lamellæ vary somewhat in their degree of proximity to each other and in the extent of their ramification. They are sometimes wavy or crisped as in some species of Paxillus. The interspaces are usually venose. The length of the stem is generally about equal to the breadth of the pileus. It is more frequently curved or flexuous than straight, and sometimes it is narrowed downward. The spores are described by most authors as white, but if they are collected on white paper they have a slight yellowish or salmon-yellow tint. The plant grows either in a scattered manner or arranged in curved lines, as if attempting to form a "fairy ring." A favorite habitat is in the deep shade of hemlock trees, but it also grows freely and plentifully in thin woods of deciduous trees in damp, showery weather. The species is quite celebrated for its edible qualities. Fries says that "it is justly enumerated among the most sapid fungi;" Badham, that "no fungus is more popular;" Berkeley, that "it is occasionally served up at public dinners at the principal hotels in London on state occasions, when every effort is made to secure the rarest and most costly dainties;" Cooke, that "it is alike esteemed in France, Germany, Austria and Italy," and that "it is not at all uncommon to hear from epicures rapturous encomiums of this golden fungus." According to Badham, "it requires to be gently stewed, and a long time, to make it tender; but by soaking it in milk the night before, less cooking will be requisite."

Cantharellus cinnabarinus *Schw.*

Cinnabar-colored Chantarelle.

Pileus fleshy, rather thin, firm, convex, then depressed or subinfundibuliform, often irregular, *cinnabar-red*, the margin at first inflexed, often lobed in large specimens, flesh whitish, externally tinged with red; lamellæ subdistant, branched, decurrent, *cinnabar-*

red; stem glabrous, solid, *cinnabar-red;* spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 1 to 2 in. high, pileus 8 to 16 lines broad, stem 2 to 4 lines thick.

Thin woods and open places. Sandlake, Brewerton and Forestburgh. July to September.

This Chantarelle is beautifully colored, though frequently irregular in shape. It is closely related to the preceding species, from which its color, smaller size and comparatively broader lamellæ distinguish it. It varies slightly in the depth of its color, the pileus being sometimes tinged with yellow. It is difficult to preserve its red hue in the dried specimens. The width of the lamellæ is generally equal to or greater than the thickness of the flesh of the pileus. The flesh has a slightly pungent or peppery taste. The species was placed by Fries in the genus Hygrophorus, but it is a genuine Cantharellus.

Cantharellus minor *Pk.*

Small Chantarelle.

Pileus fleshy, thin, convex, then expanded, often umbilicate or centrally depressed, glabrous, *yellow*, flesh, pale-yellow; lamellæ narrow, distant, sparingly branched, yellow; stem *slender*, subflexuous, subequal, smooth, *stuffed or hollow*, yellow, with a whitish mycelium at the base; spores subelliptical, .00025 to .0003 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 1.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods and open places. Greenbush and Sandlake. June and July.

This is a very small Chantarelle. It is colored like *C. cibarius*, from which it is distinguished by its smaller size, thin and frequently umbilicate pileus, comparatively broader lamellæ, and more slender stem, and smaller spores. In very small or young specimens the stem sometimes appears to be solid, but in large and mature specimens it is stuffed or hollow, especially in the upper part. By this character it connects this section with the next. In wet weather the pileus is moist and has a watery-yellow hue which fades slightly in drying.

LEPTOCANTHARELLUS. *Pileus thin or submembranous, not glabrous; stem subelongated, generally hollow.*

Cantharellus infundibuliformis *Scop.*

Funnel-shaped Chantarelle.

Pileus thin or submembranous, convex and umbilicate, then funnel-shaped and often pervious, slightly floccose or fibrillose, uneven, varying in color from dingy-yellow to dark watery-brown when moist, grayish or grayish-yellow or grayish-brown when dry, the margin frequently wavy, irregular or lobed; lamellæ narrow, thick, decurrent, distant, irregularly or dichotomously branched, yellow or subcinereous, *becoming pruinose*, the interspaces generally venose: stem rather slender, glabrous, hollow, *yellow;* spores broadly elliptical, .00035 to .00045 in. long, .0003 to .00035 in. broad.

Var. *typicus.* Pileus dingy-yellow; stem pale-yellow.

Var. *luteolus.* (Cantharellus lutescens, 23d Rep., p. 122.) Pileus convex, umbilicate, dingy-yellow; lamellæ very distant, sparingly branched, yellowish; stem yellow, tinged with red or orange.

Var. *zonatus* Fr. Pileus zonate.

Var. *subcinereus.* Pileus dark watery-brown when moist, gray or grayish-brown when dry; stem yellowish, dingy above.

Plant gregarious or subcæspitose, 1.5 to 4 in. high, pileus 6 to 18 lines broad, stem 1.5 to 3 lines thick.

Woods and swamps among moss or fallen leaves and on decayed wood. Common. June to October.

This species is so variable that it seems desirable to designate its principal varieties by name. Through variety *subcinereus* it approaches *C. cinereus* on one hand, and, through variety *luteolus*, *C. tubæformis* on the other. Indeed, so closely is it allied to this last-named species that the two were united in Systema Mycologicum. But in all our forms or varieties the lamellæ become frosted or pruinose in appearance, and this character, according to the descriptions of Professor Fries, is a distinguishing feature of *C. infundibuliformis.* In the description of *C. tubæformis*, as given in the Handbook, the lamellæ of it also are said to be "frosted with a white bloom," but the dimensions there ascribed to its stem and spores do not correspond to those of any of our specimens. In our plant the pileus of fresh growing specimens has a moist or watery appearance, and as the moisture evaporates the color becomes paler. The surface of the pileus is a little uneven, and the fibrils are so arranged that they give it a somewhat streaked or virgate appearance approaching sometimes to a subreticulate aspect. Occasionally the pileus is slightly zonate, but such specimens grow intermingled with others that are not zonate and are evidently the same species. In the larger specimens the pileus is frequently more lobed and irregular than in the others. In these also the lamellæ are apt to be less distant and more branched and the interspaces more venose than usual. The color of the lamellæ may be yellow, grayish-yellow, subcinereous or even tinged with lilac. The stem in variety *typicus* is pale-yellow or flavid, in variety *luteolus* it is more or less tinged with red, and in variety *subcinereus* it has a dingy or smoky tint above. This variety occurs especially among Sphagnum in marshes.

Cantharellus cinereus *Pers.*

Gray Chantarelle.

Pileus thin, submembranous, centrally depressed or funnel-shaped, often becoming pervious, minutely hairy or scaly, *cinereous* or *blackish-cinereous*, the margin frequently lobed or irregular; lamellæ thick, distant or subdistant, decurrent, branched and anastomosing, *cinereous;* stem hollow, often compressed or irregular, *cinereous or blackish-cinereous;* spores elliptical, .0003 to .00035 in. long, .0002 to .00025 broad.

Plant gregarious or cæspitose, 1.5 to 3 in. high, pileus 1 to 2 in. broad, stem 2 to 4 lines thick.

Woods. Greig, Sandlake and Albany. August and September.

The gray Chantarelle is less common than the preceding species to which it is closely related, but from which it may be distinguished by the absence of yellow hues from its pileus and stem. Its stem is generally comparatively thicker and its mode of growth more cæspitose.

Cantharellus pruinosus *Pk.*

Frosted Chantarelle.

Pileus thin, convex, subumbilicate, *pruinose, white;* lamellæ *rather broad*, distant, long-decurrent, *simple or rarely branched, white;* stem long, slender, slightly enlarged above, *pruinose*, whitish; spores *globose*, .0002 to .00025 in. in diameter.

Plant about 1 in. high, pileus 2 to 3 lines broad, stem scarcely 1 line thick.

Ground in pastures. Sageville. August.

This is our smallest species, and is one most readily recognized by its slender habit, white color and minutely mealy or pruinose surface.

In some respects it approaches the European *C. Brownii* B. & Br., but is clearly distinct from it, by its broad and very decurrent lamellæ, by its pruinose surface and by its umbilicate instead of an umbonate pileus.

Cantharellus crispus differs from all the preceding species in habit and texture and is now referred to the genus Trogia.

Satisfactory examples of *Cantharellus tubæformis* have not occurred within our limits. The specimens formerly referred to this species and to *C. lutescens* prove to be only forms of *C. infundibuliformis.*

Several dimidiate and resupinate species of this genus are found in Europe, but none have occurred within our limits.

NEW YORK SPECIES OF CRATERELLUS.

CRATERELLUS *Fr.*

"Hymenium waxy-membranous, distinct, but adnate to the hymenophorum, definitely inferior, continuous, glabrous, even or rugose. Spores white.

"*Terrestrial, fleshy or membranous, autumnal fungi, related to the Cantharelli and furnished with an entire pileus and a stem.*" *Hymen. Europ.*, p. 630.

This genus is intimately related to Cantharellus on one hand, and by its nearly even hymenium it approaches Thelephora and Clavaria on the other. So intimate is its relationship with Cantharellus that, in the Systema Mycologicum, its species were referred to that genus, and in his later work, the Hymenomycetes Europæi, Professor Fries justly remarks that the analogy between various species of the two genera is wonderful. Indeed, some of the species of these genera cannot readily be distinguished without an inspection of the hymenium, so closely do they resemble each other in size, shape and color. The species of Craterellus have the hymenium nearly even, or merely rugose or rugose-wrinkled, the folds or wrinkles being irregular or indistinct, or so interwoven and lost in each other and in the hymenium that any particular one cannot readily be traced from the stem to the margin of the pileus, as they can be in species of Cantharellus. In the same species the wrinkles are more distinct in some specimens than in others, and often they are more distinct in the fresh plant than in the dried one. In all our species the hymenium is decurrent. The pileus is frequently more or less split or lobed on the margin and sometimes is divided nearly to its base. It is not clear why the genus should be characterized as "autumnal," for some of the species occur as early as July. In some of the older works these fungi are distributed in the genera Cantharellus, Merulius, Elvella and Peziza. The name Craterellus signifies a little cup, and has reference to the shape of the pileus in some species.

Synopsis of the Species.

1 Stem hollow, pileus mostly pervious.	2.
2 Hymenium cinereous or brown.	3.
3 Pileus tubiform, spores .0005 to .0007 in. long.	C. cornucopioides.
3 Pileus funnel-shaped, spores .00025 to .0003 in. long.	C. dubius.
2 Hymenium yellow.	C. lutescens.
1 Stem solid, pileus not pervious.	4.
4 Hymenium and stem similarly colored.	C. Cantharellus.
4 Hymenium and stem dissimilarly colored.	C. clavatus.

Craterellus cornucopioides *Pers.*

Cornucopia-like Craterellus. Horn-like Craterellus.

Pileus thin, submembranous, *tubiform*, pervious, sometimes granular or minutely scaly, cinereous, smoky-brown or blackish, the spreading or decurved margin generally lobed, wavy or irregular; hymenium even or rugose-wrinkled, cinereous or brown; stem very short, hollow, *blackish-brown or black*; spores *narrowly elliptical*, .0005 to .0007 in. long, .0003 to .0004 broad.

Plant gregarious or subcæspitose, 2 to 3 in. high, pileus 1 to 2.5 in. broad, stem 2 to 3 lines thick.

Woods. Common. July to September.

This is our most common Craterellus. It is easily recognized by its elongated tubular or narrowly trumpet-shaped pileus and its dingy-gray or smoky-brown hue. The pileus is thin but rather tough and elastic. The hymenium is generally a little paler than the pileus and varies in color from cinereous to reddish-brown and dark smoky-brown. It sometimes becomes pruinose when dry. The stem is short or almost obsolete, the hymenium extending nearly or quite to the surface of the ground. The spores are larger than in any of our other species. It grows especially on naked soil on shaded banks or knolls or in old roads in woods. In shape it corresponds very closely to *Cantharellus floccosus*, but in every other respect it differs decidedly from that species. In color it resembles *Cantharellus cinereus*, from which its more elongated pileus, shorter stem and different hymenium at once separate it. *Cantharellus cornucopioides* Fr., *Peziza cornucopioides* L., *Merulius cornucopioides* Pers., *Merulius purpureus* With. and *Helvella cornucopioides* Scop. are ancient synonyms.

Craterellus dubius *Pk.*

Doubtful Craterellus.

Pileus thin, *infundibuliform or subtubiform*, subfibrillose, dark-brown or lurid-brown, pervious, the margin generally wavy and lobed ; hymenium dark-cinereous and rugose when moist, the obscure crowded irregular wrinkles abundantly anastomosing, nearly even and paler when dry ; stem short, hollow, *colored like the hymenium ;* spores *broadly elliptical or subglobose*, .00025 to .0003 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem about 2 lines thick.

Ground under spruce trees. Adirondack mountains. August.

This very rare species has not been found by us since its discovery in Keene Valley, Essex county, in 1877. It is closely related to *C. cornucopioides*, from which its shorter more funnel-shaped pileus, longer paler stem and smaller spores will distinguish it. It is also apparently similar to *C. sinuosus* and *C. crispus*, and both it and they may yet prove to be different forms of one very variable species. In all of our specimens the pileus is pervious and the stem hollow to the base. This last character will distinguish the species from both those mentioned. In some specimens the pileus is much lobed or multifid on the margin. The hymenium is darker colored and much more rugose or uneven when moist than it is when dry. In the dried specimens it is pale-cinereous, often with a tinge of yellow, and its color extends to the base of the stem. The darker color of the pileus is continued downwards in the cavity of the stem. In general appearance this species corresponds more closely to *Cantharellus cinereus* than does *C. cornucopioides*, which is sometimes compared with that species.

Craterellus lutescens *Fr.*

Yellowish Craterellus.

Pileus thin, submembranous, varying from convex and umbilicate to tubiform or funnel-shaped, often becoming pervious, *yellowish, dingy-yellow or brownish*, the margin frequently lobed, wavy or irregular; hymenium nearly even or distinctly and sometimes densely rugose-wrinkled, *yellow ;* stem rather slender, subflexuous, glabrous, *hollow, yellow ;* spores subelliptical, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant single or gregarious, occasionally cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem 1.5 to 3 lines thick.

Moist places in woods and swamps. Sandlake and Helderberg mountains. July and August.

This species corresponds closely in size, color and general appearance to *Cantharellus infundibuliformis*, from which it is not readily distinguished except by its hymenium, which is neither pruinose nor furnished with distinct lamellæ, though its vein-like wrinkles sometimes make a close approach to the narrow lamellæ of that Chantarelle. It is commonly compared with *Cantharellus tubæformis*, with which, according to Fries, it was formerly confused, and to which it corresponds very closely by reason of its naked yellow hymenium. The pileus of the European plant is described as "flocculose," but in our plant it is usually almost glabrous or but slightly fibrillose. The hymenium is sometimes slightly reddish or orange-tinted and the stem is colored like it rather than like the pileus. In small or young plants it is not uncommon to find the stem stuffed below and hollow above only. The base of the stem is frequently hairy or strigose.

Cantharellus lutescens Fr., *Merulius lutescens* Pers., *Merulius xanthopus* Pers., *Helvella tubæformis* Schæff. and *Peziza undulata* Bolt. are synonyms of the older works.

Craterellus Cantharellus *Schw.*

Chantarelle Craterellus.

Pileus fleshy, firm, *convex, then centrally depressed or infundibuliform*, glabrous, yellow or pinkish-yellow, the margin commonly lobed, wavy or irregular, flesh white; hymenium nearly even or rugose-wrinkled, *yellow;* stem glabrous, *solid, yellow;* spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 1.5 to 3 in. high, pileus 1.5 to 3 in. broad, stem 3 to 5 lines thick.

Thin woods and bushy places. Sandlake. August.

So closely does this plant resemble the edible Chantarelle, both in size, shape and color, that it would be natural to suppose it a form of that species with an undeveloped or abnormally developed hymenium. Its color is a vitelline or egg-yellow, as in that species, but sometimes there is a slight pinkish tinge to the pileus and a faint shade of salmon color or orange to the hymenium. The spores also, when collected on white paper, have a yellowish or salmon-yellow tint. The plant is more frequently cæspitose than *Cantharellus cibarius*, and consequently the pileus is generally more irregular. It was placed by Schweinitz in the genus Thelephora, section CRATERELLÆ, whence the synonym *Thelephora Cantharellus* Schw. In Grevillea, vol. 1, p. 147, this name is given as a synonym of *Craterellus late-*

ritius B., which is described as "brick-red" with a deeply umbilicate pileus. I have seen no such forms of our plant and hesitate to adopt the opinion there expressed. The species appears to be peculiar to this country.

Craterellus clavatus *Pers.*

Pileus fleshy, soft, *clavate or narrowly obconic*, turbinate, truncate or slightly depressed, nearly glabrous, yellowish, flesh white ; hymenium slightly corrugated or rugose-wrinkled, *dull-purplish or brownish incarnate ;* stem short, solid, pallid or yellowish ; spores subelliptical, .0004 to .0005 in. long, .0002 to .0003 in. broad.

Plant 2 to 3 in. high, pileus 1 to 2 in. broad, stem 3 to 6 lines thick.

Hemlock woods. Brewerton. September. Rare.

This species has not been found by me since its discovery in our State in 1878. Its corresponding species among the Chantarelles is *Cantharellus brevipes.* Its resemblance to *Clavaria pistillaris* is also noticeable. The pileus is sometimes slightly uneven or rugose, and its margin is rather obtuse and sometimes crenately irregular. The color of the hymenium is a peculiar mixture of pink, brown, lilac and purple, which is not easy to define. It sometimes approaches a pale-liver color. Fries describes it as passing from violet-flesh color to fuliginous and umber-brown. These variations in the color of the hymenium have given rise to various synonyms ; for example, *Merulius violaceus* Pers., *Merulius purpurascens* Pers., *Merulius carneus* Pers., and *Merulius umbrinus* Pers. Other synonyms are *Merulius clavatus* Pers., *Clavaria truncata* Schmidt, and *Clavaria elvelloides* Wulf.

Craterellus cæspitosus Pk. is a spurious species and is therefore omitted.

NAMES OF NEW YORK PYRENOMYCETOUS FUNGI.

The names by which the following species were formerly known or reported are given in the right-hand column whenever they differ from those of the Saccardoan system. The left-hand column contains the names required by that system.

Perisporiaceæ.

Podosphæra tridactyla *De By.*	Podosphæra Kunzei *Lev.*
P. biuncinata *C. & P.*	
Sphærotheca Castagnei *Lev.*	
S. pruinosa *C. & P.*	
Phyllactinia suffulta *Sacc.*	Phyllactinia guttata *Lev.*
Uncinula adunca *Lev.*	
U. Ampelopsidis *Pk.*	
U. Clintonii *Pk.*	
U. macrospora *Pk.*	
U. flexuosa *Pk.*	
U. geniculata *Ger.*	
U. circinata *C. & P.*	
U. parvula *C. & P.*	
U. luculenta *Howe.*	
U. Americana *Ho[illegible].*	Uncinula spiralis *B. & C*
Microsphæra Astragali *Trev.*	Microsphæra holosericea *Lev.*
M. abbreviata *Pk.*	
M. Hedwigii *Lev.*	
M. Dubyi *Lev.*	
M. Friesii *Lev.*	
M. penicillata *Lev.*	
M. Van Bruntiana *Ger.*	
M. densissima *Schw.*	
M. Russellii *Clinton.*	
M. extensa *C. & P.*	
M. diffusa *C. &. P.*	
M. pulchra *C. & P.*	
M. Vaccinii *C. & P.*	
M. Platani *Howe.*	
M. Menispermi *Howe.*	
M. Symphoricarpi *Howe.*	
Erysiphe communis *Fr.*	
E. Martii *Lev.*	
E. lamprocarpa *Lev.*	
E. Liriodendri *Schw.*	
E. Euphorbiæ *Pk.*	
Erysiphella aggregata *Pk.*	
Eurotium herbariorum *Lk.*	
Dimerosporium Collinsii *Thum.*	Sphæria Collinsii *Schw.*
Scorias spongiosa *Fr.*	

Sphæriaceæ.

Cœlosphæria exilis *Sacc.*	Sphæria exilis *A. & S.*
Fracchiæa callista *B. & C.*	S. callista *B. & C.*
Calosphæria Princeps *Sel.*	Valsa pulchella *Fr.*
Coronophora oötheca *Sacc.*	Sphæria oötheca *B. & C.*
Quaternaria Persoonii *Tul.*	Valsa quaternata *Fr.*
Valsa Pini *Fr.*	
V. Vitis *Fckl.*	
V. Alni *Pk.*	
V. Linderæ *Pk.*	
V. subclypeata *C. & P.*	
V. Americana *B. & C.*	
V. truncata *C. & P.*	
V. centripeta *Fr.*	
V. colliculus *Wormsk.*	
V. Rubi *Fckl.*	
V. nivea *Fr.*	
V. leucostoma *Fr.*	
V. ambiens *Fr.*	
V. salicina *Fr.*	
V. translucens *De Not.*	
Eutypella Prunastri *Sacc.*	Valsa Prunastri *Fr.*
E. stellulata *Sacc.*	V. stellulata *Fr.*
E. Platani *Sacc.*	V. Platani *Schw.*
E. fraxinicola *Sacc.*	V. fraxinicola *C. & P.*
E. tumidula *Sacc.*	V. tumidula *C. & P.*
E. innumerabilis *Sacc.*	V. innumerabilis *Pk.*
Eutypa Acharii *Tul.*	
E. lata *Tul.*	
E. spinosa *Tul.*	Sphæria limæformis *Schw.*
Diatrype disciformis *Fr.*	
D. Stigma *Fr.*	
D. platystoma *Berk.*	
D. bullata *Fr.*	
D. corniculata *B. & Br.*	
D. asterostoma *B. & C.*	
D. Duriæi *Mont.*	
Diatrypella Tocciæana *De Not.*	Diatrype Tocciæana *De Not.*
D. aspera *Nits.*	D. aspera *Fr.*
D. discoidea *C. & P.*	D. discoidea *C. & P.*
D. betulina *Pk.*	D. betulina *Pk.*
D. Cephalanthi *Sacc.*	D. Cephalanthi *Schw.*
D. prominens *Howe.*	
Ceratostoma rubefaciens *Sacc.*	Sphæria rubefaciens *Pk.*
C. piliferum *Fckl.*	S. piliferum *Fr.*
Chætomium lanosum *Pk.*	
C. funicolum *Cke.*	
C. melioloides *C. & P.*	
C. comatum *Fr.*	Chætomium elatum *Kze.*
Sordaria coprophila *C. & D.*	Hypoxylon coprophilum *Fr.*
S. fimiseda *C. & D.*	Sphæria fimiseda *C. & D.*
S. amphicornis *Ellis.*	S. eximia *Pk.*

Sordaria valsoides *Sacc.*	Sphæria valsoides *Pk.*
Hypocopra leucoplaca *Sacc.*	S. leucoplaca *B. & R.*
Coprolepa fimeti *Sacc.*	S. fimeti *Pers.*
Philocopra canina *Sacc.*	S. canina *Pk.*
Rosellinia aquila *De Not.*	S. aquila *Fr.*
R. Desmazierii *Sacc.*	S. Desmazierii *B. & Br.*
R. mutans *Sacc.*	S. mutans *C. & P.*
R. obtusissima *Sacc.*	S. obtusissima *B. & C.*
R. pulveracea *Fckl.*	S. pulveracea *Ehrh.*
R. sordaria *Rehm.*	S. sordaria *Fr.*
R. hirtissima *Sacc.*	S. hirtissima *Pk.*
Bombardia fasciculata *Fr.*	S. bombarda *Batsch.*
Anthostomella Closterium *Sacc.*	S. Closterium *B. & C.*
A. rostrispora *Sacc.*	S. rostraspora *Ger.*
A. smilacinina *Sacc.*	S. smilacinina *Pk.*
Anthostoma adustum *Sacc.*	Diatrype adusta *C. & P.*
A. cercidicolum *Sacc.*	D. cercidicola *B. & C.*
A. atropunctatum *Sacc.*	D. atropunctata *Schw.*
A.? scoriadeum *Sacc.*	Sphæria scoriadea *Fr.*
Xylaria polymorpha *Grev.*	
X. corniformis *Fr.*	
X. grandis *Pk.*	
X. acuta *Pk.*	
X. Hypoxylon *Grev.*	
X. digitata *Grev.*	
X. graminicola *Ger.*	
X. filiformis *Fr.*	
Ustulina vulgaris *Tul.*	Hypoxylon ustulatum *Bull.*
Daldinia concentrica *C. & D.*	H. concentricum *Bolt.*
Hypoxylon coccineum *Bull.*	H. fragiforme *Pers.*
H. argillaceum *Berk.*	
H. Howeanum *Pk.*	
H. fuscum *Fr.*	
H. xanthocreas *B. & C.*	
H. cohærens *Fr.*	
H. perforatum *Schw.*	
H. multiforme *Fr.*	
H. Morsei *B. & C.*	
H. serpens *Fr.*	
H. Sassafras *Berk.*	
H. atropurpureum *Fr.*	
H. rubiginosum *Fr.*	
H. fuscopurpureum *Berk.*	
H. smilacicolum *Sacc.*	Diatrype smilacicola *Schw.*
Nummularia discreta *Tul.*	D. discreta *Schw.*
N. Bulliardi *Tul.*	Hypoxylon nummularia *Bull.*
Ceratostomella rostrata *Sacc.*	Sphæria rostrata *Fr.*
Gnomoniella tubiformis *Sacc.*	S. tubæformis *Tode.*
G. mirabilis *Sacc.*	S. mirabilis *Pk.*
G. vulgaris *Sacc.*	S. Gnomon *Tode.*
G. curvicolla *Sacc.*	S. curvicolla *Pk.*
G. eccentrica *Sacc.*	S. eccentrica *C. & P.*

Gnomoniella fimbriata *Sacc.*	Sphæria fimbriata *Pers.*
G. Coryli *Sacc.*	S. Coryli *Batsch.*
G. melanostyla *Sacc.*	S. melanostyla *Fr.*
Læstadia carpinea *Sacc.*	Sphærella carpinea *Fr.*
L. fraxinicola *Sacc.*	Depazea fraxinicola *Curt.*
L. brunnea *Sacc.*	D. brunnea *B. & C.*
Physalospora minutella *Sacc.*	Sphæria minutella *Pk.*
P. ceanothina *Sacc.*	S. ceanothina *Pk.*
Trichosphæria fissurarum *Sacc.*	S. fissurarum *B. & C.*
T. subcorticalis *Sacc.*	S. subcorticalis *Pk.*
Wallrothiella Arceuthobii *Sacc.*	S. Arceuthobii *Pk.*
W. squalidula *Sacc.*	S. squalidula *C. & P.*
Botryosphæria Quercuum *Sacc.*	Melogramma Quercuum *Fr.*
Cryptosporella leptasca *Sacc.*	Valsa leptasca *P. & C.*
C. anomala *Sacc.*	Diatrype anomala *Pk.*
Sphærella punctiformis *Rabh.*	Sphæria punctiformis *Pers.*
S. maculiformis *Auersw.*	
S. spleniata *C. & P.*	
S. orbicularis *Pk.*	
S. colorata *Pk.*	
S. indistincta *Pk.*	
S. Impatientis *P. & C.*	
S. Vaccinii *Cke.*	
S. sparsa *Auersw.*	
S. Sarraceniæ *Sacc.*	S. Sarraceniæ *Schw.*
S. smilacicola *Cke.*	Depazea smilacicola *Schw.*
Stigmatea Robertiana *Fr.*	Dothidea Robertiana *Fr.*
Didymella Sphærellula *Sacc.*	Sphæria Sphærellula *Pk.*
D. onosmodina *Sacc.*	S. onosmodina *P. & C.*
Melanopsamma recessa *Sacc.*	S. recessa *C. & P.*
M. Papilla *Sacc.*	S. Papilla *Schw.*
Bertia moriformis *De Not.*	S. moriformis *Tode.*
Venturia ditricha *Karst.*	
V. Clintonii *Pk.*	
V. compacta *Pk.*	
V. Kalmiæ *Pk.*	
V. orbicula *C. & P.*	
V. pulchella *C. & P.*	
V. Dickiei *C. & D.*	
V. Myrtilli *Cke.*	
Endothia gyrosa *Fckl.*	S. gyrosa *Schw.*
Melanconis stilbostoma *Tul.*	Valsa stilbostoma *Fr.*
M. thelebola *Sacc.*	V. thelebola *Fr.*
Diaporthe platasca *Sacc.*	Diatrype platasca *Pk.*
D. acerina *Sacc.*	Valsa acerina *Pk.*
D. Woolworthii *Sacc.*	V. Woolworthii *Pk.*
D. leiphæma *Sacc.*	V. leiphæma *Fr.*
D. impulsa *Sacc.*	V. impulsa *C. & P.*
D. Cratægi *Fckl.*	V. Cratægi *Curr.*
D. bicincta *Sacc.*	V. bicincta *C. & P.*
D. oxyspora *Sacc.*	V. oxyspora *Pk.*
D. obscura *Sacc.*	V. obscura *Pk.*

Diaporthe mucronata *Sacc.*	Valsa mucronata *Pk.*
D. salicella *Sacc.*	Sphæria salicella *Fr.*
D. spiculosa *Nitsch.*	S. spiculosa *Pers.*
D. aculeata *Sacc.*	S. aculeata *Schw.*
D. racemula *Sacc.*	S. racemula *C. & P.*
D. Desmodii *Sacc.*	S. Desmodii *Pk.*
D. exercitalis *Sacc.*	S. exercitalis *Pk.*
D. picea *Sacc.*	S. picea *Pers.*
Didymosphæria Parnassiæ *Sacc.*	S. Parnassiæ *Pk.*
Massariella bufonia *Speg.*	Massaria bufonia *Tul.*
Parodiella perisporioides *Speg.*	Sphæria perisporioides *B. & C.*
Amphisphæria phileura *Sacc.*	S. phileura *C. & P.*
A. salebrosa *Sacc.*	S. salebrosa *C. & P.*
A. thujina *Sacc.*	S. thujina *Pk.*
Otthia alnea *Sacc.*	Cucurbitaria alnea *Pk.*
O. seriata *Sacc.*	C. seriata *Pk.*
Valsaria Peckii *Sacc.*	Valsa Peckii *Howe.*
V. moroides *Sacc.*	Diatrype moroides *C. & P.*
Massaria Corni *Sacc.*	Massaria gigaspora *Desm.*
M. Argus *Tul.*	
M. vomitoria *B. & C.*	
Leptosphæria Doliolum *De Not.*	Sphæria Doliolum *Pers.*
L. subconica *Sacc.*	S. subconica *C. & P.*
L. viridella *Sacc.*	S. viridella *Pk.*
L. ramulicola *Sacc.*	S. ramulicola *Pk.*
L. scapophila *Sacc.*	S. scapophila *Pk.*
L. sorghophila *Sacc.*	S. sorghophila *Pk.*
L. orthogramma *Sacc.*	S. orthogramma *B. & C.*
L. culmifraga *C. & D.*	S. culmifraga *Desm.*
L. Crepini *De Not.*	S. Crepini *West.*
L. Marcyensis *Sacc.*	S. Marciensis *Pk.*
L. taxicola *Sacc.*	S. taxicola *Pk.*
L. platanicola *Sacc.*	S. platanicola *Howe.*
Clypeosphæria Hendersoniæ *Sacc.*	S. Hendersoniæ *Ellis.*
Chætosphæria leonina *Sacc.*	S. leonina *C. & P.*
C. phæostromoides *Sacc.*	S. phæostromoides *Pk.*
Melanomma pulvis-pyrius *Fckl.*	S. pulvis-pyrius *Pers.*
Trematosphæria pertusa *Fckl.*	S. pertusa *Pers.*
Sporormia minima *Auersw.*	S. minima *Auersw.*
Aglaospora profusa *Lamb.*	Valsa profusa *Fr.*
Pseudovalsa bicornis *Sacc.*	Melanconis bicornis *Cke.*
P. lancif. v. elliptica *Pk.*	M. elliptica *Pk.*
P. sambucina *Sacc.*	Valsa sambucina *Pk.*
P. hapalocystis *Sacc.*	V. hapalocystis *B. & Br.*
Melogramma vagans *De Not.*	Melogramma Bulliardi *Tul.*
Metasphæria Semen *Sacc.*	Sphæria Semen *C. & P.*
M. staphylina *Sacc.*	S. staphylina *Pk.*
Lasiosphæria hirsuta *C. & D.*	S. hirsuta *Fr.*
L. cæsariata *Sacc.*	S. cæsariata *C. & P.*
L. viridicoma *Sacc.*	S. viridicoma *C. & P.*
L. canescens *Karst.*	S. canescens *Pers.*
L. xestothele *Sacc.*	S. xestothele *B. & C.*

Lasiosphæria Pezizula *Sacc.*	Sphæria Pezizula *B. & C.*
L. spermoides *C. & D.*	S, spermoides *Hoffm.*
L. ovina *C. & D.*	S. ovina *Pers.*
Acanthostigma Clintonii *Sacc.*	S. Clintonii *Pk.*
Zignoella exigua *Sacc.*	S. exigua *C. & P.*
Pleospora herbarum *Rabh.*	S. herbarum *Pers.*
Pyrenophora phæocomes *Sacc.*	
Iulella monosperma *Sacc.*	S. monosperma *Pk.*
Teichospora obducens *Fckl.*	S. obducens *Fr.*
T. interstitialis *Sacc.*	S. interstitialis *C. & P.*
T. phellogena *Sacc.*	S. phellogena *B. & C.*
Cucurbitaria elongata *Grev.*	S. elongata *Fr.*
C. Berberidis *Gray.*	
Thyridium Spraguei *Sacc.*	S. Spraguei *B. & C.*
Fenestella superficialis *Sacc.*	Melogramma superficialis *P. & C.*
F. Xanthoxyli *Sacc.*	Valsa Xanthoxyli *Pk.*
Ophiobolus fulgidus *Sacc.*	Sphæria fulgida *C. & P.*
O. porphyrogonus *Sacc.*	S. rubella *Pers.*
O. acuminatus *Duby.*	S. acuminata *Sow.*
O. Urticæ *Sacc.*	S. Urticæ *Rabh.*
Sillia ferruginea *Karst.*	Diatrype ferruginea *Fr.*
Cryptospora suffusa *Tul.*	Valsa suffusa *Fr.*
C. femoralis *Sacc.*	V. femoralis *Pk.*
C. cinctula *Sacc.*	V. cinctula *C. & P.*
C. trichospora *Sacc.*	V. trichospora *C. & P.*

Hypocreaceæ.

Nectriella mycetophila *Sacc.*	Nectria mycetophila *Pk.*
Melanospora lagenaria *Fckl.*	Sphæria lagenaria *Pers.*
Hypomyces lateritius *Tul.*	Hypocrea lateritia *Fr.*
H. Lactifluorum *Tul.*	H. Lactifluorum *Schw.*
H. floccosus *Fr.*	H. floccosa *Fr.*
H. ochraceus *Tul.*	
H. aurantius *Fckl.*	
H. Van Bruntianus *Ger.*	
H. polyporinus *Pk.*	
H. transformans *Pk.*	
Hypocrea rufa *Fr.*	
H. Patella *C. & P.*	
H. chromosperma *C. & P.*	
H. gelatinosa *Fr.*	
H. contorta *Schw.*	
H. Richardsoni *B. & M.*	
H. citrina *Fr.*	
H. alutacea *C. & D.*	
H. apiculata *C. & P.*	
Nectria Ribis *Rabh.*	
N. cinnabarina *Fr.*	
N. Celastri *Schw.*	
N. cucurbitula *Fr.*	
N. sanguinea *Fr.*	

Nectria episphæria *Fr.*	
N. Peziza *Fr.*	
N. Apocyni *Pk.*	
Gibberella pulicaris *Sacc.*	Sphæria pulicaris *Pers.*
G. Saubinetii *Sacc.*	S. Saubinetii *Mont.*
Claviceps purpurea *Tul.*	Cordyceps purpurea *Tul.*
Cordyceps pistillariæformis *B. & Br.*	Torrubia clavulata *Schw.*
C. superficialis *Sacc.*	T. superficialis *Pk.*
C. ophioglossoides *Tul.*	T. ophioglossoides *Tul.*
C. capitata *Lk.*	T. capitata *Fr.*
C. entomorrhiza *Fr.*	T. entomorrhiza *Fr.*
C. militaris *Lk.*	
Epichloe typhina *Tul.*	
Hypocrella Hypoxylon *Sacc.*	Epichloe Hypoxylon *Pk.*

Dothideaceæ.

Phyllachora Ulmi *Fckl.*	Sphæria ulmea *Schw.*
P. Lespedezæ *Sacc.*	S. Lespedezæ *Schw.*
P. graminis *Fckl.*	S. graminis *Pers.*
P. Caricis *Sacc.*	Dothidea Caricis *Fr.*
P. Trifolii *Fckl.*	D. Trifolii *Fr.*
P. flabella *Thum.*	D. flabella *B. & C.*
P. Pteridis *Fckl.*	D. Pteridis *Pers.*
P. Dalibardæ *Sacc.*	D. Dalibardæ *Pk.*
P. episphæria *Sacc.*	D. episphæria *Pk.*
Dothidiella Kalmiæ *Sacc.*	D. Kalmiæ *Pk.*
D. Osmundæ *Sacc.*	D. Osmundæ *P. & C.*
Plowrightia ribesia *Sacc.*	D. ribesia *Pers.*
P. morbosa *Sacc.*	Sphæria morbosa *Schw.*
Dothidea Sambuci *Fr.*	
D. tetraspora *B. & Br.*	
D. Linderæ *Ger.*	
Ropographus filicinus *Fckl.*	Dothidea filicina *Fr.*
R. clavisporus *Sacc.*	Hysterium clavisporum *C. & P.*

Microthyriaceæ.

Myiocopron Smilacis *Sacc.*	Microthyrium Smilacis *De Not.*

Lophiostomaceæ.

Lophiotrema Spirææ *Sacc.*	Lophiostomum Spirææ *Pk.*
L. Scrophulariæ *Sacc.*	L. Scrophulariæ *Pk.*
L. sexnucleatum *Sacc.*	L. sexnucleata *Cke.*
Lophiostoma triseptatum *Pk.*	
L. prominens *Pk.*	
L. turritum *C. & P.*	
L. magnatum *C. & P.*	
L. macrostomum *De Not.*	
L. scelestum *Sacc.*	
Lophidium obtectum *Sacc.*	L. obtectum *Pk.*

Hysteriaceæ.

Aulographum subconfluens *Pk.*	
Glonium stellatum *Muhl.*	
G. parvulum *Ger.*	
G. simulans *Ger.*	
G. hyalospermum *Ger.*	
G. lineare *De Not.*	Hysterium lineare *Fr.*
Angelina rufescens *Duby.*	Ascobolus conglomeratus *Schw.*
Hysterium pulicare *Pers.*	
H. angustatum *A. & S.*	
H. truncatulum *C. & P.*	
H. ellipticum *Fr.*	
H. macrosporum *Pk.*	
H. Thuiarum *C. & P.*	
H. magnosporum *Ger.*	
H. Azaleæ *Schw.*	
H. rimincolum *Schw.*	Dothidea rimincola *Schw.*
Mytilidion tortile *Sacc.*	Hysterium tortile *Schw.*
Dichæna faginea *Fr.*	
Gloniopsis australis *Sacc.*	H. australis *Duby.*
Hysterographium Fraxini *De Not.*	H. Fraxini *Pers.*
H. insidens *Sacc.*	H. insidens *Schw.*
H. Rousselii *Sacc.*	H. Rousselii *De Not.*
H. variabile *Sacc.*	H. variabile *C. & P.*
H. vulvatum *Rehm.*	H. vulvatum *Schw.*
Hypoderma ilicinum *De Not.*	H. ilicinum *De Not.*
H. nervisequum *DC.*	
H. Desmazieri *Duby.*	
H. lineare *Pk.*	Rhytisma lineare *Pk.*
H. virgultorum *DC.*	
H. commune *Duby.*	Hysterium commune *Fr.*
H. scirpinum *DC.*	H. scirpinum *Fr.*
H. Smilacis *Rehm.*	H. Smilacis *Schw.*
Lophodermium exaridum *C. & P.*	
L. maculare *De Not.*	H. maculare *Fr.*
L. hysterioides *Sacc.*	H. xylomoides *Chev.*
L. sphærioides *Duby.*	H. sphærioides *A. & S.*
L. Pinastri *Chev.*	H. Pinastri *Schrad.*
L. typhinum *Lamb.*	H. typhinum *Fr.*
Lophium mytilinum *Fr.*	
Colpoma morbidum *Sacc.*	Triblidium morbidum *Pk.*
C. lacteum *Pk.*	
Acrospermum compressum *Tode.*	

NEW YORK SPECIES OF VISCID BOLETI.

BOLETUS *Dill.*

Hymenium composed of separable tubes crowded into a porous stratum, without a trama, distinct and easily separable from the hymenophore. Mouths of the tubes either porous. round or angular; spores normally fusiform, rarely oval or subrotund. *Terrestrial, fleshy, putrescent, centrally stipitate fungi. Many of them valuable for their edible qualities, a few poisonous. Hym. Europ.*, p. 495.

This genus is related to Paxillus on one hand and to Polyporus on the other. It is more accurately limited than many others, but its species are numerous and less clearly defined. Some are very variable, others are too closely allied to be readily distinguished. Fries remarks that "no genus has given me more trouble than that of the Boleti." The difficulty is apparently due to the imperfect descriptions given by some authors and to the variability of some species whose limits have not been well ascertained.

Most of the Boleti grow in the warmest part of the season, and especially in very warm showery weather. They are scarce in dry weather. Some species attain a very large size, others exhibit a singular change of color in their tubes or flesh when cut or bruised. They are described as terrestrial, yet a few species sometimes occur also on much decayed wood.

The spores vary in color in different species, but this variation occurs in closely related species, so that it is not deemed available for classifying in series as in the genus Agaricus. It is, however, valuable as a specific character and should always be noted. Fries has taken the primary color of the tubes as the distinguishing character of the series, but the same objection holds in this case as in the other.

New York is rich in species of this genus. Two sections, LACERIPEDES Pk. (Torr. Bull. 1883, p. 73) and HIRTIPELLES Pk. (in. ed.) are represented, of which no examples appear to have occurred in Europe. We attempt here an exposition of the species of the Viscipelles, the first section in the Friesian arrangement.

VISCIPELLES. *Pileus covered with a viscose pellicle.* Stem solid, neither bulbous nor reticulated with veins. Tubes adnate to the stem, rarely sinuate, of one color. *Hym. Europ.*, p. 496.

In this section the species have the pileus either viscid or glutinous when moist, and in most of them the viscid pellicle is separable from the flesh. The flesh, when cut or exposed to the air does not, with one exception, assume the bluish tints so often seen in some of the members of other sections, yet in some, dull-pinkish or more obscure tints appear. In mature plants it generally becomes soft, almost floccose or cottony in texture. The tubes are mostly adnate or even slightly decurrent. In rare instances they may be somewhat depressed around the stem. The pores are usually of medium or large size and frequently angular. The dissepiments are often uneven or dentate. The mouths are colored like the rest of the tubes. Yellow or ochraceous hues prevail, but the tubes when young are paler than when mature. The stem is not distinctly bulbous, is always solid and generally glabrous or merely dotted. It is annulate in some, naked in others. In several closely related central species of the group it, as well as the tubes, exudes, when young, drops of a thick, gummy fluid, which soon hardens, becomes darker and forms sugary granules or glandular dots. The color of the spores is by no means uniform, but it is some shade of ochraceous, ferruginous or brown. The first and last species here described are exceptional by their slight viscidity. The first is also exceptional by its universal tomentose-pulverulent veil. Several species are edible. Nearly all occur in regions inhabited by pine or other coniferous trees, and are wanting in localities destitute of these trees.

Synopsis of the Species.

Stem annulate.	1.
Stem not annulate.	6.
1 Cuticle of the pileus red.	2.
1 Cuticle of the pileus not red.	3.
2 Pileus either wholly or on the margin yellow-pulverulent.	B. Ravenelii.
2 Pileus squamose.	B. spectabilis.
3 Young tubes whitish.	B. Elbensis.
3 Young tubes yellow.	4.
4 Stem not dotted.	B. Clintonianus.
4 Stem dotted.	5.
5 Stem 5 lines or more thick, annulus not glutinous.	B. luteus.
5 Stem less than 5 lines thick, annulus glutinous.	B. subluteus.
6 Stem dotted.	7.
6 Stem not dotted.	9.

7 Pileus yellow.	8.
7 Pileus not clear yellow.	B. granulatus.
8 Stem rhubarb color.	B. punctipes.
8 Stem yellow, 4 lines or more thick.	B. subaureus.
8 Stem generally yellow, less than 4 lines thick.	B. Americanus.
9 Pileus bay-brown or chestnut color.	10.
9 Pileus some other color.	B. piperatus.
10 Pileus very glutinous, stem very short.	B. brevipes.
10 Pileus merely viscid when moist, stem longer.	B. badius.

Boletus Ravenelii *B. & C.*

Ravenel's Boletus.

Pileus convex or nearly plane, slightly viscid when young or moist, at first *covered with a sulphur-yellow pulverulent tomentum*, the disk at length naked, dull-red, flesh whitish, sometimes with yellowish strains; tubes at first plane, adnate, pale-yellow, at length yellowish-brown or umber, sometimes becoming convex and slightly depressed around the stem, dingy-greenish when bruised, medium size, subrotund; stem nearly equal, *clothed and colored like the young pileus*, yellow within, with a slight somewhat evanescent tomentose annulus; spores ochraceous-brown, .0004 to .0005 in. long, .0002 to .00025 broad.

Plant solitary, rarely cæspitose, pileus 1 to 3 in. broad, stem 1.5 to 4 in. long, 3 to 6 lines thick.

Woods and copses. Rensselaer, Saratoga and Fulton counties.

This is a very distinct and beautiful species. Mr. Ravenel remarks in his notes that "this plant is not infested by larvæ, and preserves more constant characters than any other Boletus with which I am acquainted." The webby powdered filaments constitute a universal veil, which at first covers the whole plant and conceals the young tubes. As the pileus expands, the veil generally disappears from the disk and ruptures between the margin and the stem, a part adhering to each. In consequence of the peculiar veil and the slight viscidity of the pileus the species does not harmonize well with the associated species, and but for the slight annulus it might as well be placed near *B. piperatus.* The annulus is sometimes stained by the spores. These, when caught on white paper, at first appear to have a slight greenish tint.

Boletus spectabilis *Pk.*

Showy Boletus.

Pileus broadly convex, at first *covered with a red tomentum*, then *squamose*, viscid when moist, *red*, the tomentose scales becoming grayish-red, brownish or yellowish, flesh whitish or pale-yellow; tubes at first yellow, concealed by a reddish glutinous membrane, then ochraceous, convex, *large, angular*, adnate ; stem nearly equal, annulate, yellow above the annulus, red or red with yellow stains below ; spores *purplish-brown*, .0005 to .0006 in. long, .00025 to .00028 broad.

Pileus 2 to 5 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods in swamps. Adirondack mountains. August.

This rare and showy species is at present known only from two localities, North Elba, where it was first discovered in 1869, and at Jacksons, near Cedar river, where it occurred in 1878. When cut the flesh emits a strong, unpleasant odor. Wounds of the flesh, made by insects or small animals, had a bright-yellow color. When young, the tomentose veil covers the whole plant, but it soon breaks up into scales on the pileus, and partly or wholly disappears from the stem. The color of the spores is darker than in any of the other species of this section.

Boletus Elbensis *Pk.*

Elba Boletus.

Pileus gibbous or convex, smooth, viscid when moist, *dingy-gray or pinkish-gray*, obscurely virgate-spotted, flesh white ; tubes at first *whitish*, nearly plane, adnate or slightly decurrent, rather large, angular, becoming dingy or brownish-ochraceous ; stem nearly equal, annulate, *whitish above the annulus*, colored like the pileus below, sometimes slightly reticulated at the apex by the decurrent walls of the tubes ; spores *ferruginous-brown*, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant subgregarious, pileus 2 to 4 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods of larch, spruce and balsam. Adirondack mountains. July to September.

This species is so closely related to the European *B. laricinus*, that it might almost be regarded as a variety of that species. I have separated it because of its smooth pileus and stem. I have never seen the former squamose, nor the latter scrobiculate. From *B. viscidus* it differs decidedly in its coloration.

Boletus Clintonianus *Pk.*

Clinton's Boletus.

Pileus thick, convex, very viscid or glutinous. smooth, soft, shining, varying in color, *golden-yellow, reddish-yellow or chestnut-color*, the margin thin, flesh pale-yellow, becoming less bright or dingy on exposure to the air ; tubes nearly plane, adnate or subdecurrent, small, angular or subrotund, pale-yellow when young, becoming dingy-ochraceous, changing to purplish-brown where bruised; stem equal or slightly thickened at the base, straight or flexuous, annulate, *yellow at the apex*, elsewhere reddish or reddish-brown, sometimes stained with yellow, slightly reticulate at the apex by the decurrent walls of the tubes, annulus *whitish or yellow, persistent*, forming a thick tomentose band about the stem; spores *brownish-ochraceous*, .0004 to .00045 in. long, .00016 to .0002 broad.

Plant single or rarely cæspitose, pileus 2 to 5 in. broad, stem 2 to 5 in. long, 4 to 9 lines thick.

Mossy ground in woods and grassy ground in open places; generally under or near larch trees.

This fine species is apparently the American analogue of the European *B. elegans*, from which it differs in its generally darker color, in its persistent, not fugacious, annulus, and in its stem, which is not at all dotted, either above or below the annulus. It is edible, and has a mild taste in the fresh uncooked state. It has occurred once in Washington Park, Albany, near some larch trees, with which it was probably introduced.

Boletus luteus *L.*

Yellow-brown Boletus.

Pileus gibbous or convex, sometimes nearly plane, viscid or glutinous when moist, virgate-spotted, yellowish-brown, flesh white or yellowish; tubes small, simple, adnate, at first pale-yellow, then dingy-ochraceous; stem *stout*, rather short, annulate, *rough with dots and yellowish above the ring*, brownish-white or yellowish below, the annulus *large, membranous*, whitish or brownish-white; spores ochraceo-ferruginous, nearly fusiform, .0003 in. long, .00015 broad.

Gregarious or rarely subcæspitose, pileus 2 to 5 in. broad, stem 1 to 2 in. long, 5 to 8 lines thick.

Under pine trees, *Pinus sylvestris*. Menands. October.

This is the only instance in which I have observed this species in our State. Possibly it may have been introduced in this place with the young pines under which it was growing. Its annulus is very conspicuous. It is sometimes torn and partly adherent in fragments to the margin of the pileus. In short-stemmed specimens it extends downwards and covers the lower part of the stem like a sheath, resembling in this respect the western *Boletus sphærosporus*, a related species. In other specimens it forms a broad band with the upper margin widely spreading. In the dried specimens the pileus has assumed a dull-brownish or reddish-brown hue. The plant is edible.

Boletus subluteus *n. sp.*

Small Yellowish Boletus.

Pileus convex or nearly plane, viscid or glutinous when moist, sometimes obscurely virgate-spotted, dingy-yellowish inclining to ferruginous-brown, flesh whitish varying to dull-yellowish; tubes plane or convex, adnate, small, subrotund, yellow, becoming ochraceous; stem equal, *slender*, annulate, pallid or yellowish, *marked both above and below the annulus with reddish or brownish glandular dots*, annulus submembranous, *glutinous*, at first concealing the tubes, then *collapsing and forming a narrow whitish or brownish band* about the stem; spores ochraceo-ferruginous, subfusiform, .0003 to .0004 in. long, .00016 to .0002 broad.

Solitary or gregarious, pileus 1.5 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Sandy soil in pine woods or groves. Albany and Lewis counties. September and October.

In the Twenty-third Report this fungus was referred as an aberrant form to *B. luteus*, which it much resembles in its general characters. But I find it so constant in its peculiar features that I am disposed to regard it as a distinct species. It differs from *B. luteus* in its smaller size, more slender stem and glutinous collapsing annulus. This never extends downwards so as to sheathe the lower part of the stem, but forms a narrow band with scarcely any spreading margin. Besides the stem is conspicuously dotted both above and below the annulus. The markings of the pileus in this species, *B. luteus* and *B. Elbensis* are similar and resemble little patches of innate brownish fibrils. The species is probably edible, but I have not tested it.

Boletus Americanus *n. sp.*

American Boletus.

Pileus thin, convex or nearly plane, soft, very viscid or glutinous when moist, slightly *tomentose on the margin when young*, soon glabrous or slightly squamose on the margin, rarely wholly squamose-spotted from the drying of the gluten, pale-yellow, becoming dingy or less bright with age, sometimes vaguely dotted or streaked with bright-red, flesh pale-yellow, less clear or pinkish-gray on exposure to the air; tubes plane or convex, adnate, *rather large*, angular, pale-yellow, becoming sordid-ochraceous; stem *slender*, equal or slightly tapering upwards, firm, *not at all annulate*, yellow, sometimes pallid or brownish toward the base, marked with numerous brown or reddish-brown glandular dots, yellow within; spores *ochraceo-ferruginous*, oblong or subfusiform, .00035 to .00045 in. long, .00016 to .0002 broad.

Gregarious, pileus 1 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Under or near pine trees in woods and open places. Very common. July to October.

This is one of our most common species. It is generally associated with *B. granulatus*, from which it is easily distinguished by its thinner pileus, yellow color and more slender stem. As in that and other related species, the stem and tubes exude drops of a turbid milk or juice which hardens and forms the glandular dots seen on them. These are sometimes so numerous that they become confluent. By them and the viscidity of the pileus in this and allied species the fingers become stained in handling the fresh plants. The species is closely related to the European *B. flavidus*, to which our plant has commonly been referred by American mycologists, and under which name it stands in the Twenty-third Report. I am satisfied by more recent investigation that it should be kept distinct, inasmuch as it constantly differs in the character of the veil and the dots of the stem. In *B. flavidus* the stem is described as sprinkled with fugacious glandules above the merely viscous annulus. In *B. Americanus* the stem is dotted from top to base with persistent glandules, there is no appearance of an annulus on it and the veil is somewhat tomentose on the margin of the young pileus. The plant has a slight subacid odor which is perceptible even in the dried specimens. The mycelium is white.

Boletus subaureus *Pk.*

Pale-golden Boletus.

Pileus convex, becoming nearly plane, soft, viscose, *pale-yellow or golden-yellow*, sometimes adorned with darker spots or small tufts of hairs, the margin in the young plant slightly grayish-tomentose, flesh pale-yellow; tubes small or medium size, somewhat angular, adnate or subdecurrent, pale-yellow, becoming dingy-ochraceous; stem equal, *stout*, glandular-dotted, *yellow without and within*; spores *ochraceous-brown*, oblong or subfusiform, .00035 to .0004 in. long, .00016 broad.

Plant gregarious or rarely cæspitose, pileus 2 to 4 in. broad, stem 1.5 to 2.5 in. long, 4 to 6 lines thick.

Thin woods. Albany and Saratoga counties. July to October.

This species resembles *B. Americanus* in color, but differs from it in its thicker pileus, stouter stem and differently colored spores. These have nearly the same color as those of *B. Ravenelii.* In its more robust habit it approaches *B. granulatus.* The minute hairy squamules of the pileus are a peculiar feature, but they are not always present. The glandular dots occur also on the tubes.

Boletus punctipes *Pk.*

Punctate-stemmed Boletus.

Pileus convex or nearly plane, glutinous when moist, yellow, the thin margin at first minutely grayish-pulverulent, becoming recurved with age; tubes short, nearly plane, adnate, small, subrotund, *at first brownish,* becoming sordid-ochraceous; stem rather long, *tapering upwards,* not annulate, glandular-dotted, *rhubarb-yellow;* spores .00035 to .0004 in. long, .00016 to .0002 broad.

Plant gregarious, pileus 2 to 3 in. broad, stem 2 to 3 in. long, 3 to 5 lines thick.

Woods. Gansevoort, Saratoga county. August.

The rhubarb-colored stem and the brownish color of the young hymenium are the distinguishing features of this species. The granulations occur also on the tubes. The species is a rare one, having been found but once.

Boletus albus *Pk.*

White Boletus.

Pileus convex, viscid when moist, *white,* flesh white or yellowish; tubes plane, rather small or medium size, subrotund, adnate, whitish, becoming yellow or ochraceous; stem equal or slightly tapering downwards, not annulate, both it and the tubes glandular-dotted, white, sometimes tinged with pink towards the base; spores *ochraceous,* subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious or subcæspitose, pileus 1.5 to 3 in. broad, stem 1.5 to 3 in. long, 3 to 5 lines thick.

Pine or hemlock woods. Saratoga county and Adirondack mountains. August to October.

This species is easily known by its white pileus. This, however, becomes dark-colored or brown in drying. The fresh plant sometimes has a peculiar fetid odor, but it does not appear to be constant. *Boletus Boudieri* Q. is a closely related European species. Another European species bears the name *Boletus albus* Gillet, but the name of the American plant, which was published in 1873, has priority.

Boletus granulatus *L.*

Granulated Boletus.

Pileus thick, convex or nearly plane, very viscid or glutinous when moist, variable in color, *pinkish-gray*, *reddish-brown*, *yellowish*, *tawny-ferruginous or brownish*, flesh white or tinged with yellow; tubes nearly plane, adnate, *small*, at first whitish or very pale-yellow, becoming dingy-ochraceous; stem subequal, rather short, not annulate, both it and the tubes marked with glandular dots, whitish or pallid, sometimes yellowish; spores *ochraceo-ferruginous*, subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious, pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 4 to 6 lines thick.

Woods, especially of pine, and in open places. Very common. July to October.

The pileus in this species is very variable in color, but it is never wholly white as in the preceding species. Its stem is often dotted to the base, but the dots or granules are generally more numerous and distinct on the upper part. This and *B. Boudieri* appear to be the only European species with exannulate glandular-dotted stems. If we have correctly valued our forms, New York alone has five such species. It is true, they are closely related to each other, and might be regarded by some as mere varieties of a single extremely variable species, but to me the distinguishing characters here given appear to be constant and decisive.

B. granulatus is recorded as edible by most authors. I have not tested it. Gillet remarks that it ought to be regarded at least with suspicion. *B. collinitus* in the Twenty-third Report, *B. flavorufus* Schæff., *B. lactifluus* Sow. and *B. circinans* Pers. are synonyms.

Boletus brevipes *Pk.*

Short-Stemmed Boletus.

Pileus thick, convex, covered with a *thick*, *tough gluten* when young or moist, *dark-chestnut color*, sometimes fading to dingy-tawny, the margin inflexed, flesh white or tinged with yellow; tubes short, nearly plane, adnate, small, subrotund, at first whitish, then yellowish, becoming dingy-ochraceous; stem *very short*, not annulate, whitish, *not dotted or rarely with a few very minute and inconspicuous dots at the apex;* spores subfusiform, .0003 in. long, .00012 broad.

Solitary or gregarious, pileus 1.5 to 2.5 in. broad, stem .5 to 1 in. long, 3 to 5 lines thick.

Sandy soil in pine woods. Albany county. October.

The species is closely related to *B. granulatus*, from which it differs especially in its copious gluten, darker-colored pileus, shorter stem, and in the almost entire absence of granules from the tubes and stem. When present they are limited to the upper part of the stem and are extremely minute and inconspicuous. It occurs very late in the season. *B. viscosus* Frost is a synonym.

Boletus badius *Fr.*

Bay Boletus.

Pileus convex, even, soft, viscid or glutinous when moist, somewhat shining when dry, *tawny or chestnut color*, flesh whitish tinged with yellow, bluish next the tubes; tubes rather long and large, angular, adnate, *sinuate-depressed*, whitish-yellow, becoming tinged with green; stem nearly equal, rather long, even, paler than the pileus, *brownish-pruinose;* spores oblong, .0004 to .0005 in. long, .00016 to .0002 broad.

Pileus 2 to 3 in. broad, stem 2 to 4 in. long, 3 to 5 lines thick.

Woods. Rensselaer and Lewis counties. August and September.

The dimensions of the spores are derived from the American plant. They are smaller than those given by Karsten for the European plant. We have observed no greenish hue to the tubes nor bluish color to the flesh, and to this extent our specimens are doubtful. The plant needs further examination.

Boletus piperatus *Bull.*

Peppery Boletus.

Pileus convex or nearly plane, smooth, *slightly viscid* when moist, *yellowish, cinnamon or subferruginous*, flesh white or yellowish, *taste acrid*, peppery; tubes rather long and large, angular, plane or convex, adnate or subdecurrent, *reddish-ferruginous*, generally more highly colored than the pileus; stem slender, nearly equal, tawny-yellow, *bright-yellow at the base;* spores *ferruginous-brown*, subfusiform, .00035 to .00045 in. long, .00016 broad.

Pileus 1 to 3 in. broad, stem 1.5 to 3 in. long, 2 to 4 lines thick.

Woods and open places. Common and variable. July to October.

The species is readily known by the peppery taste of the flesh, and the bright yellow color of the base of the stem. The pileus is sometimes rimose-scaly or rimose-areolate. It is less viscid than most other species of this section. The color of the spores is similar to that of the spores of *B. Elbensis*. *B. ferruginatus* Batsch. is a synonym.

EXPLANATION OF PLATE 1.

Ombrophila rubella *Quel.*

Fig. 1. Fragment of bark bearing the fungus.
Fig. 2. A plant and its matrix magnified.
Fig. 3. A branched filament bearing four clusters of spores magnified.
Fig. 4. Five spores, × 400.

Geoglossum vitellinum *Bres.*

Fig. 5. Five plants of various forms.
Fig. 6. Three asci ; two containing spores and two united below.
Fig. 7. Four spores, × 400.

Periconia albiceps *Pk.*

Fig. 8. Piece of a stem bearing the fungus.
Fig. 9. Two plants magnified.
Fig. 10. Filaments of the head ; two of them bearing spores, × 400.
Fig. 11. Four spores, × 400.

Helotium fraternum *Pk*

Fig. 12. A petiole bearing four examples of the fungus.
Fig. 13. Two plants magnified.
Fig. 14. A paraphysis and an ascus containing spores, × 400.
Fig. 15. Three spores, × 400.

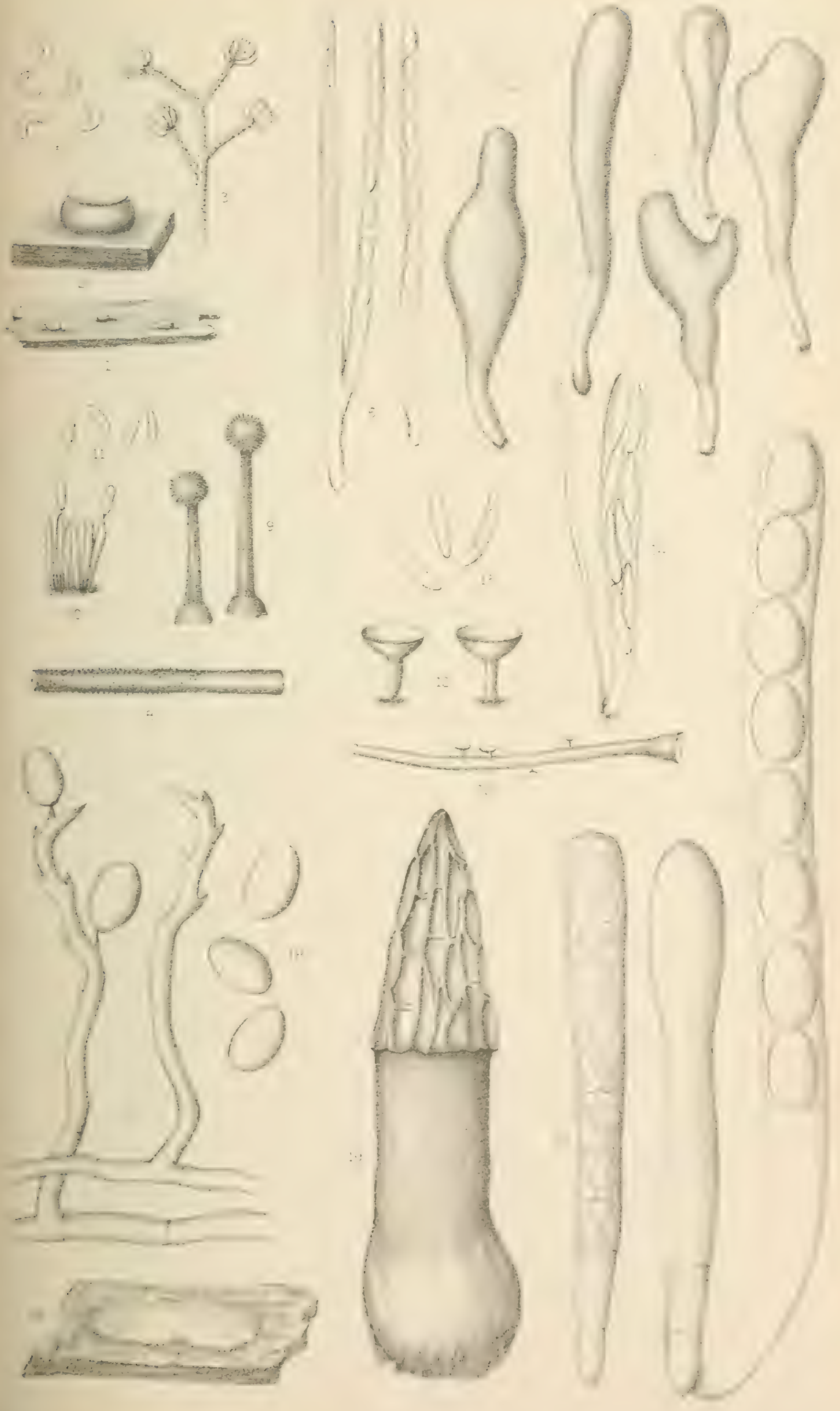
Acremonium flexuosum *Pk.*

Fig. 16. A piece of wood bearing the fungus.
Fig. 17. Branching filaments ; one of them bearing two spores, × 400.
Fig. 18. Three spores, × 400.

Morchella angusticeps *Pk.*

Fig. 19. A plant of medium size.
Fig. 20. Two undeveloped asci ; one containing crowded nuclei, × 400.
Fig. 21. An ascus containing spores, × 400.

FUNGI.



EXPLANATION OF PLATE 2.

Peziza leucobasis *Pk.*

Fig. 1. A piece of wood bearing the fungus.
Fig. 2. A plant magnified.
Fig. 3. A paraphysis and an ascus containing spores, × 400.

Peziza orbicularis *Pk.*

Fig. 4. A plant and its matrix.
Fig. 5. A paraphysis and an ascus containing spores, × 400.
Fig. 6. Three spores, × 400.

Gorgoniceps turbinata *Sacc.*

Fig. 7. Piece of a branch bearing the fungus.
Fig. 8. A plant magnified.
Fig. 9. A paraphysis and an ascus containing spores, × 400.
Fig. 9′. A spore, × 400.

Glomerularia Corni *Pk.*

Fig. 10. A leaf spotted by the fungus.
Fig. 11. Short branching flocci, × 400.
Fig. 12. Flocci and spores, × 400.
Fig. 13. A mass of adhering spores, × 400.
Fig. 14. A single spore, × 400.

Peziza longipila *Pk.*

Fig. 15. Piece of a stem bearing the fungus.
Fig. 16. Two plants magnified.
Fig. 17. A hair from the cup, × 400.
Fig. 18. A paraphysis and two asci containing spores, × 400.
Fig. 19. Five spores, × 400.

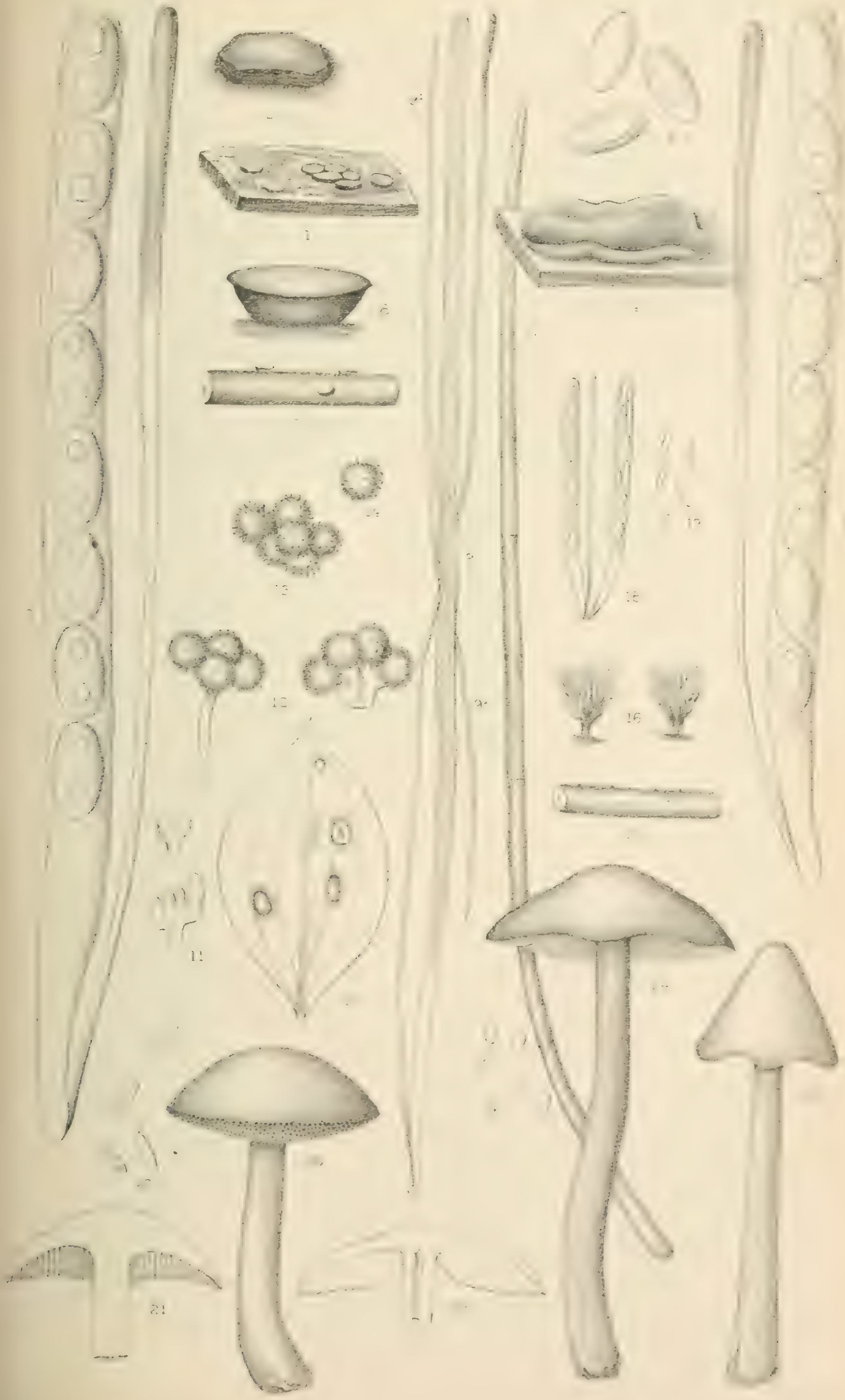
Boletus rubinellus *Pk.*

Fig. 20. A plant of medium size.
Fig. 21 Vertical section of a pileus and upper part of the stem.
Fig. 22. Four spores, × 400.

Collybia hygrophoroides *Pk.*

Fig. 23. A young plant.
Fig. 24. An older plant with the pileus more expanded.
Fig. 25. Vertical section of a pileus and upper part of the stem.
Fig. 26. Five spores, × 400.

FUNGI.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THIRTY-EIGHTH ANNUAL REPORT

ON THE

NEW YORK STATE MUSEUM OF NATURAL HISTORY,

BY THE

REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW YORK.

TRANSMITTED TO THE LEGISLATURE JANUARY 15, 1885.

ALBANY:
WEED, PARSONS & COMPANY.
1885.

STATE OF NEW YORK.

No. 23.

IN ASSEMBLY,

January 15, 1885.

THIRTY-EIGHTH ANNUAL REPORT

OF THE

TRUSTEES OF THE STATE MUSEUM OF NATURAL HISTORY.

Office of the Regents, *January* 8, 1885.

To the Legislature of the State of New York :

I have the honor to transmit herewith the thirty-eighth annual report of the Regents of the University as Trustees of the New York State Museum of Natural History, as required by law.

H. R. PIERSON,
Chancellor.

REPORT OF THE BOTANIST.

To the Honorable the Board of Regents of the University of the State of New York:

GENTLEMEN — I have the honor to communicate to you the following statement of the work of the Botanist during the past year:

The investigation of our State flora and the collection and preparation of specimens to properly represent it in the State Herbarium, a work which had been partly interrupted for two years, has been fully renewed and actively prosecuted during the collecting season. Specimens were collected in the counties of Essex, Warren, Fulton, Lewis, Saratoga, Albany and Rensselaer. Of the collected specimens, those representing one hundred and ninety-two species have been prepared, mounted and added to the Herbarium. One hundred and sixteen of these, of which a considerable number are species of fungi not before published, were not previously represented therein. The remainder are species now more completely and satisfactorily illustrated in their different forms and varieties or by more perfect specimens.

Specimens of about one hundred and forty species of plants, mostly fungi, have been contributed by various botanists and correspondents. Of these there are two species of this State new to the Herbarium and not among my collections of the past season. These added to the number already given make a total of one hundred and eighteen added species. A list of their names is marked A. Also a list of contributors and their respective contributions is given and marked B.

Notices of plants not before reported, together with a record of the localities where they were found, also descriptions of such as are deemed new species are in a part of the report marked C. These descriptions, in nearly all cases, have been drawn up with the fresh plant before me. The microscope has been taken with me on my collecting trips, and the microscopical details studied at the time of collecting, in order to insure greater accuracy.

A record of observations on species not new to our flora has been made and is marked D. It contains remarks upon any matters of interest in connection with the variation, distribution, locality or habitat of the species.

A descriptive manual of our Hymenomycetous or fleshy fungi, among which are the mushrooms and mushroom-like Agarics, is greatly needed. The number of those desirous of becoming acquainted with our native species of these plants is constantly increasing, but a proper and convenient manual for their study and identification is wanting. Accidents from the use of poisonous kinds for food, by those, who, ignorant of the true characters of the species, have mistaken them for the edible mushroom occur from time to time. These accidents might readily be avoided by a better and more common acquaintance with the characteristic features of our edible species and their less valuable associates. As a step in this direction monographs of the different genera represented in our flora were commenced in the thirty-third report and continued in subsequent ones. For the present report a monograph has been prepared of our species of Lactarius, or milky-juice fungi, and also one of the genus (subgenus of Fries) Pluteus.

The genus Lactarius is a large one, at present represented in our State by forty species. Some of these rank as edible, others as poisonous. While the genus as such is easily recognized and accurately separated from all other genera, some of the species that compose it approach each other so closely and vary so considerably that without clear and explicit descriptions they are liable to be confused and their discrimination unsatisfactory. In this monograph it has been the design to make the specific descriptions so complete and at the same time to give such prominence to the distinguishing characters, that no difficulty need be experienced in the identification of our species. The spore characters are also given, a part of the description that is sometimes of great importance, and yet one that has generally been omitted by authors. A synoptical table has been prepared, by means of which, with good fresh specimens, it is believed, the name of any species described in the monograph may be easily and quickly ascertained. These monographs constitute a part of the report marked E. The revision of our specimens of Sphæriaceous fungi, which was commenced last year, has been continued and completed. This revision, as was explained in my preceding report, was necessary in order to bring the arrangement and nomenclature of our species into harmony with the recent Saccardoan system, which, from present indications, is destined to supersede the old Friesian system.

It is desirable, not only that our Agarics and other fleshy Hymenomycetous fungi, which so generally shrivel and change color in drying, should be illustrated by sketches of the fresh plant colored according to nature, but also that magnified drawings of the microscopic characters of the smaller and minute fungi should be made and accompany the specimens in the Herbarium. A considerable number of such sketches were made the past season, at the time the specimens were collected. From these I have prepared three plates of figures designed to illustrate, as far as possible, the characters of the new species described in the following pages

Thanks are hereby rendered to those botanists who have kindly aided me in the prosecution of my labors, both by the contribution of specimens and of information.

Most respectfully submitted,
CHAS. H. PECK.

ALBANY, *December* 31, 1884.

A.

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Ipomæa purpurea, *L.*
Populus dilatata, *L.*
Listera convallarioides, *Hook.*
Molinia cærulea, *Mœnch.*
Festuca rubra, *L.*
Agaricus clypeolarius, *Bull.*
A. terræolens, *Pk.*
A. vexans, *Pk.*
A. purpureofuscus, *Pk.*
A. immaculatus, *Pk.*
A. discopus, *Lev.*
A. hiemalis, *Osbeck.*
A. scyphoides, *Fr.*
A. jubatus, *Fr.*
A. unitinctus, *Pk.*
A. atrides, *Lasch.*
A. comosus v. albus, *Pk.*
A. villosus, *Fr.*
A. umboninotus, *Pk.*
A. maritimoides, *Pk.*
A. comatellus, *Pk.*
A. subexilis, *Pk.*
A. sordidulus, *Pk.*
A. parvifructus, *Pk.*
A. cærulipes, *Pk.*
A. madeodiscus, *Pk.*
Coprinus lagopus, *Fr.*
Cortinarius aureifolius, *Pk.*
C. multiformis, *Fr.*
C. decoloratus, *Fr.*
Hygrophorus purpurascens, *Fr.*
Lactarius varius, *Pk.*
L. hysginus, *Fr.*
L. paludinellus, *Pk.*
Russula basifurcata, *Pk.*
Lentinus suavissimus, *Fr.*
Boletus sulphureus, *Fr.*
B. versipellis, *Fr.*
Polyporus abortivus, *Pk.*
P. epileucus, *Fr.*
P. crispellus, *Pk.*
P. lætificus, *Pk.*
P. fimbriatellus, *Pk.*
P. ornatus, *Pk.*
P. odorus, *Pk.*
P. subacidus, *Pk.*
P. griseoalbus, *Pk.*
Merulius fugax, *Fr.*
M. aurantiacus, *Pk.*
Geaster striatus, *DC.*
Coniothyrium valsoideum, *Pk.*
Phoma Phytolaccæ, *B. & C.*
P. elevatum, *Pk.*
P. Pruni, *Pk.*
P. albifructum, *Pk*
Sphæropsis alnicola, *Cke.*
Sphæropsis ribicola, *C. & E.*
Diplodia pinea, *Kx.*
Sphærographium hystricinum, *Sacc.*
S. lantanoidis, *Pk.*
Appendicularia entomophila, *Pk.*
Gelatinosporium fulvum, *Pk.*
Phyllosticta Podophylli, *West.*
P. Labruscæ, *Thum.*
P. Epigææ, *Pk.*
P. lantanoidis, *Pk.*
Ascochyta Cassandræ, *Pk.*
A. colorata, *Pk.*
Marsonia Quercus, *Pk.*
Pestalozzia monochætoidea, *S. & E.*
Stagonospora Smilacis, *Sacc.*
Glœosporium Salicis, *Wint.*
G. Ribis, *Cast.*
Septoria alnicola, *Cke.*
S. Ribis, *Desm*
S. Lysimachiæ, *West.*
S. Dentariæ, *Pk.*
S. Dalibardæ. *Pk.*
S. Diervillæ, *Pk.*
S. fumosa, *Pk.*
S. punicei, *Pk*
S. Trillii, *Pk.*
Rhabdospora subgrisea, *Pk.*
Hadrotrichum lineare, *Pk.*
Ramularia multiplex, *Pk.*
R. Prini, *Pk.*
R. Diervillæ, *Pk.*
R. Oxalidis, *Farl.*
Cylindrosporium veratrinum, *S. & W.*
Ovularia moniloides, *E. & M.*
Peronospora Arthuri, *Farl.*
P. Halstedii, *Farl.*
P. Potentillæ, *DeBy.*
Entyloma Saniculæ, *Pk.*
Cercospora Violæ, *Sacc.*
C. Majanthemi, *Fckl.*
C. Cephalanthi, *E. & K.*
C. Comari, *Pk.*
Cenangium balsameum, *Pk.*
Sphærotheca pannosa, *Lev.*
Asterina nuda, *Pk.*
Capnodium Citri, *B. & D.*
Valsa Friesii, *Fckl.*
V. cornina, *Pk.*
V. leucostomoides, *Pk.*
V. opulifoliæ, *Pk.*
Diatrypella Frostii, *Pk.*
Sphærella conigena, *Pk.*
Didymosphæria Typhæ, *Pk.*
Venturia Cassandræ, *Pk.*
Diaporthe Wibbei, *Nits.*
D. cylindrospora, *Pk.*

Leptosphæria eutypoides, *Pk.*
L. Corallorhizæ, *Pk.*
L. lycopodiicola, *Pk.*
Metasphæria Myricæ, *Pk.*
Mazzantia sepium, *S. & P.*
Sphærulina sambucina, *Pk.*
Cryptospora Caryæ, *Pk.*

Not New to the Herbarium.

Ranunculus repens, *L.*
Nuphar advena, *Ait.*
Caulophyllum thalictroides, *Mx.*
Podophyllum peltatum, *L.*
Capsella Bursa-pastoris, *Mœnch.*
Viola pubescens, *Ait.*
V. rostrata, *Pursh.*
V. can. v. sylvestris, *Regel.*
Hypericum ellipticum, *Hook.*
Acer dasycarpum, *Ehrh.*
Geranium maculatum, *L.*
Rhus typhina, *L.*
Rubus hispidus, *L.*
Rosa setigera, *Mx.*
Fragaria Virginiana, *Ehrh.*
Prunus serotina, *Ehrh.*
Aralia hispida, *Mx.*
A. nudicaulis, *L.*
Sambucus pubens. *Mx.*
Cornus sericea, *L.*
C. stolonifera, *Mx.*
Fedia umbilicata, *Mx.*
Tussilago Farfara, *L.*
Senecio aureus, *L.*
Tanacetum vulgare, *L.*
Vaccinium Pennsylvanicum, *Lam.*
Chiogenes hispidula, *T. & G.*
Amarantus blitoides. *Wats.*
Quercus palustris, *Du Roi.*
Alnus incana, *Willd.*
A. serrulata, *Ait.*
Salix fragilis, *L.*
Symplocarpus fœtidus, *Salisb.*
Corallorhiza multiflora, *Nutt.*
Uvularia perfoliata, *L.*
U. grandiflora, *Sm.*
Trillium grandiflorum, *Salisb.*
Juncus marginatus, *Rostk.*
Carex stipata, *Muhl.*
Carex grisea, *Wahl.*
C. laxiflora, *Lam.*
C. umbellata, *Schk.*
Holcus lanatus, *L.*
Agrostis vulgaris, *With.*
Glyceria fluitans, *R. Br.*
G. elongata, *Trin.*
Danthonia spicata, *Beauv.*
D. compressa, *Aust.*
Panicum dichotomum, *L.*
Bromus ciliatus, *L.*
Aira cæspitosa, *L.*
Millium effusum, *L.*
Lycopodium complanatum, *L.*
Agaricus muscarius, *L.*
A. naucinoides, *Pk.*
A. transmutans, *Pk.*
A. radicatus, *Relh.*
A. maculatus, *A. & S.*
A. stipitarius, *Fr.*
A. clavicularis, *Fr.*
A. atrocæruleus, *Fr.*
A. strictior, *Pk.*
A. rhodopolius, *Fr.*
A. præcox, *Pers.*
A. subochraceus, *Pk.*
A. Hypnorum, *Batsch.*
A. Rodmani, *Pk.*
A. arvensis, *Schæff.*
Coprinus atramentarius, *Bull.*
Cortinarius porphyropus, *A. & S.*
Marasmius anomalus, *Pk.*
M. androsaceus, *L.*
Panus lævis, *B. & C.*
Schizophyllum commune, *Fr.*
Boletus Clintonianus, *Pk.*
Polyporus lucidus, *Leys.*
P. undosus, *Pk.*

B.

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. S. M. Rust, Syracuse, N. Y.

Trillium grandiflorum. *Salisb.*

Mrs. L. L. Goodrich, Syracuse, N. Y.

Trillium grandiflorum. *Salisb.*

Prof. N. L. Britton, New York, N. Y.

Juncus trifidus, *L.*

Prof. O. C. Willis, White Plains, N. Y

Ledum latifolium, *Ait.*
Andromeda polifolia, *L.*

Prof. W. G. Farlow, Cambridge, Mass.

Phoma Amelanchieris, *Farl.*
Coleosporium Senecionis, *Wint.*
Cylindrosporium Gei, *Farl.*
Entyloma Lobeliæ, *Farl.*
Ramularia Oxalidis, *Farl.*
Peronospora Halstedii, *Farl.*
Stictis Tsugæ, *Farl.*
Phyllachora Wittrockii, *Sacc*

Rev. J. L. Zabriskie, Nyack, N. Y.

Rhus typhina, *L.*
Quercus palustris, *Du Roi.*
Juncus marginatus, *Rostk.*
Appendicularia entomophila, *Pk.*

Harold Wingate, Philadelphia, Pa.

Chondrioderma Michelii, *Lib.* v sessile, *Rostf.*

Geo. A. Rex, M. D., Philadelphia, Pa.

Trichia chrysosperma, *Bull.*
Comatricha longa, *Pk.*
Physarella mirabilis, *Pk.*

E. A. Burt, Albany, N. Y.

Hydrangea arborescens, *L.*
Carex stram v. festucacea, *Gr.*
Carex Houghtonii, *Torr.*

H. C. Gordinier, Troy, N. Y.

Aster ptarmicoides, *T. & G.*
Fedia radiata, *Mx.*
Trillium grandiflorum, *Salisb.*
Liparis Lœselii, *Rich.*

Romeyn B. Hough, Lowville, N. Y.

Listera convallarioides, *Hook.*
Liparis Lœselii, *Rich.*
Habenaria obtusata, *Rich.*
H. rotundifolia, *Rich.*

D. Byron Waite, Springwater, N. Y.

Castilleia coccinea, *Spreng.*

J. D. Greenslete, Broadalbin, N. Y.

Polygonatum biflorum, *Ell.*
Orontium aquaticum, *L.*

H. Andrews, Albany, N. Y.

Potamogeton Robbinsii, *Oakes.*

John D. Parsons, Albany, N. Y.

Lycoperdon giganteum, *Batsch.*

D. A. A. Nichols, Dunkirk, N. Y.

Uncinula spiralis, *B & C.*

T. F. Allen, M. D., New York, N. Y.

Nitella tenuissima, *Kutz.*
N. glomerulifera, *A. Br*
N. opaca, *Ag.*
N. minuta, *Allen.*
Tolypella comosa, *Allen.*
Tolypella fimbriata, *Allen.*
T. intertexta, *Allen.*
Chara sejuncta, *A. Br.*
C. hydropitys, *A. Br.*
C. gymnopus, *A. Br.*

Prof. L. Lesquereux, Columbus, O.

*Polyporus lucidus, *Leys.?*
*Polyporus applanatus, *Fr.?*

---

* These are monstrous growths from abandoned coal mines, and therefore their specific identification is uncertain.

F. S. Earle, Cobden, Ill.

Septoria Bromi, *Sacc.*
S. Pentstemonis, *E. & E.*
S. asciculosa, *E. & E.*
S. podophyllina, *Pk.*
Glœosporium Potentillæ, *Ouds.*
Phyllosticta Fraxini, *E. & W.*
P. pyrorum, *Cke.*
Sporidesmium Fumago, *Cke.*
Æcidium Epilobii, *DC.*
Cercospora sordida, *Sacc.*
C. Persicæ, *Sacc.*
C. fuscovirens, *Sacc.*
Entyloma Lobeliæ, *Farl.*
E. Physalidis, *Wint.*
Peronospora Arthuri, *Farl.*
Microsphæra Platani, *Howe.*
Phyllactinia suffulta, *Sacc.*
Dimerosporium pulchrum, *Sacc.*

Hon. G. W. Clinton, Albany, N. Y.

Lentinus lepideus, *Fr.*
Rhabdospora subgrisea, *Pk.*
Polyporus squamosus, *Fr.*
P. applanatus, *Fr.*

J. B. Ellis, Newfield, N. J.

Polyporus oblectans, *Berk.*
Irpex coriaceus, *B. & R.*
Phlebia zonata, *B. & C.*
Thelephora cæspitulans, *Schw.*
Stereum subpileatum, *B. & C.*
Hymenochæte scabriseta, *Cke.*
Peniophora flavido-alba, *Cke.*
Physarella mirabilis, *Pk.*
Septoria Helianthi, *E. & K.*
S. Speculariæ, *B. & C.*
Pestalozzia Myricæ, *E. & M.*
Pestalozziella subsessilis, *S. & E.*
Stilbospora fenestrata, *E. & E.*
Puccinia nigrescens, *Pk.*
P. splendens, *Vize.*
P. mirabilissima, *Pk.*
P. asperior, *E. & E.*
P. Angelicæ, *E. & E.*
Triphragmium echinatum, *Lev.*
Ustilago Vilfæ, *Wint.*
U. lineata, *Cke.*
Sorosporium Ellisii, *Wint.*
Peridermium orientale, *Cke.*
Æcidium porosum, *Pk.*
Æ. Xanthoxyli, *Pk.*
Æcidium Æsculi, *E. & E.*
Æ. Collinsiæ, *E. & E.*
Æ. Ceanothi, *E. & E.*
Ramularia Celastri, *E. & M.*
Peronospora Sicyicola, *Trel.*
P. Halstedii, *Farl.*
Cenangium asterinosporum, *E. & E*
Pecillum Americanum, *Cke.*
Pilacre Petersii, *B. & Br.*
Saccardia Martini, *E. & S.*
Valsa sordida, *Nits.*
V. cercophora, *Ell.*
Cucurbitaria Coremæ, *E. & E.*
Diatrypella deusta, *E. & M*
Didymosphæria cupula, *Ell.*
Trabutia quercina, *S. & R.*
Hypoxylon pruinatum, *Kl.*
Diaporthe Conradii, *Ell.*
D. densissima, *Ell.*
Venturia pezizoides, *S. & E.*
Massaria sudans, *B. & C.*
Leptosphæria Xerophyli, *Ell.*
Linospora ferruginea, *E. & M.*
Microthyrium Juniperi, *Desm.*

H. W. Harkness, M. D., San Francisco, Cal.

Hymenula aciculosa, *E. & H.*
Octaviania rosea, *Hark.*
Gautiera monticola, *Hark.*
Splanchnomyces Behrii, *Hark.*
Septoria Hosackiæ, *Hark.*
S. Lupini, *Hark.*
Marsonia Neilliæ, *Hark*
Glœosporium Pteridis, *Hark.*
Septoglœum Fraxini, *Hark.*
S. maculans, *Hark.*
S. Nuttallii, *Hark.*
Harknessia longipes, *Hark.*
Pestalozzia corynoidea, *Hark.*
P. anomala, *Hark.*
Pestalozzia Moorei, *Hark.*
Puccinia anachoreta, *Hark.*
P. evadens, *Hark.*
P. variolans, *Hark.*
P. melanconioides, *E. & H.*
P. digitata, *E. & H*
Uromyces Nevadensis, *Hark.*
U. Spragueæ, *Hark.*
U. Eriogoni, *E. & H.*
Morthiera Mespili, *Fckl.*
Melanconium magnum, *Berk.*
Rhytisma Andromedæ, *Fr.*
Lophodermium petiolicolum, *Fckl.*

Aug. F. Fœrste, Granville, Ohio.

Secotium Warnei, *Pk.*

C.

PLANTS NOT BEFORE REPORTED.

Ipomœa purpurea, *Lam.*

Along railroads and in waste places. West Albany. It is commonly cultivated as an ornamental plant and for the sake of shade. It continues to reproduce itself from year to year and spreads readily by seed.

Populus dilatata, *Ait.*

Sandy soil beyond West Albany. This tree, formerly introduced for ornament, produces only staminate flowers with us, and therefore does not propagate itself by seed. But it spreads freely by its roots, and having once obtained a foothold it does not often yield its ground unless compelled to do so by man. In the station whence our specimens were taken, there is a grove of thrifty young trees at a considerable distance from any dwelling, but they are probably the descendants of trees planted there many years ago, perhaps in front of some dwelling, all traces of which have long since disappeared.

Listera convallarioides, *Hook.*

Turin, Lewis county. *Romeyn B. Hough.* The three North American species of this genus have now all been found in our State, but they are all rare with us.

Festuca rubra, *L.*

Wet ground. Caroga, Fulton county. July. This was formerly considered a variety of *F. ovina*, sheep's fescue, but it is now generally classed as a distinct species. It is said to be indigenous about Lake Superior and northward, but has probably been introduced in the locality here mentioned. It was found in a clearing recently made, and could not have occupied the station many years. According to Professor F. L. Scribner, our specimens correspond to the variety *fallax*, which is common in Europe.

Molinia cærulea, *Mœnch.*

Wet ground. Caroga. July. A grass introduced from Europe, and perhaps not yet fully established here. It was found growing with the preceding species, and with several of our native grasses, and was apparently well able to take care of itself. It forms dense tufts, and has an erect, somewhat rigid appearance.

Tolypella comosa, *Allen.*

Seneca lake. *T. F. Allen.*

Tolypella fimbriata, *Allen.*

Lake Ontario. *Allen.*

Tolypella intertexta, *Allen.*

Seneca lake. *Allen.*

Chara hydropitys, *A. Br.* v. genuina, *A. Br.*

Saranac river. Aug. *Paul Allen.*

Agaricus clypeolarius, *Bull.*

Copses and thin woods. Karner. Oct. This species was reported in the Twenty-third Museum report, but erroneously, as the specimens were afterward found to belong to *A. metulæsporus*, a species which closely resembles this in external characters. The specimens now under consideration are believed to belong to the true *A. clypeolarius.* The spores in them are much smaller than those of *A. metulæsporus.* In many cases the spores furnish important characters for distinguishing species of Agarics, and it is to be regretted that European mycologists have so generally neglected them in their descriptions.

Agaricus (Tricholoma) terræolens, *n. sp.*

Pileus thin, convex or nearly plane, slightly silky fibrillose, whitish with a brownish or grayish brown slightly prominent disk , lamellæ sub-distant, emarginate, white, stem equal, slightly silky, shining, stuffed or hollow, white ; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .0002 to .00025 broad ; flesh white, taste and odor strong, unpleasant and earthy.

Plant 1 to 2 inches high, pileus 10 to 15 lines broad, stem about 2 lines thick.

Under ground hemlock, *Taxus Canadensis.* South Ballston, Saratoga county. Sept.

The species belongs to the section SERICELLA, and is closely related to *A. inamœnus*, from which it is separated by its smaller size, less distant lamellæ, stuffed or hollow stem and different odor. Nor do I find the stem radicating or the disk tinged with yellow as in that species. Fries compares the odor of *A. inamœnus* to that of *Geranium Robertianum*, but the odor of our plant is decidedly earthy, resembling that of vegetable mold or mossy rocks. Its taste is similar to its odor, and remains in the mouth and throat a long time.

Agaricus (Mycena) immaculatus, *n. sp.*

Pileus membranaceous, conical or sub-hemispherical, glabrous, slightly striate on the margin, pure white ; lamellæ moderately broad, distant, adnate or uncinate-decurrent, white ; stem slender, pellucid, white, glabrous, generally villose strigose at the base, and slightly thickened at the apex ; spores oblong or cylindrical, .0003 to .00035 in. long, .00012 broad.

Plant 8 to 18 lines high, pileus 2 to 4 lines high and broad, stem scarcely .5 line thick.

Among moss and fallen leaves and on naked ground. Adirondack mountains. June.

The species belongs to the section ADONIDEÆ and is related in size and color to *A. lacteus*, from which I have separated it on account of the decurrent toothed lamellæ and the longer spores. The striations of the pileus are also more distinctly visible in our plant when dried than they are when it is fresh.

Agaricus (Mycena) vexans, *n. sp.*

Pileus membranous, conical sub-campanulate or convex, rather distantly striate, blackish-brown, sometimes slightly pruinose; lamellæ subdistant, ascending, adnate or uncinate-adnate, slightly venose-connected, at first white, becoming grayish or smoky white, the edge paler; stem slender, rather tenacious, hollow, glabrous, colored like the pileus, somewhat floccose-villose at the base; spores sub-elliptical, .0003 to .00035 in. long, .0002 to .00025 broad; odor slight, alkaline.

Plant scattered or gregarious, not cæspitose, 2 to 2.5 inches high, pileus 4 to 6 lines high and broad, stem scarcely 1 line thick.

Ground in thin woods and open places. Adirondack mountains. June.

I have placed this species in the section FILIPEDES, although the slightly venose interspaces ally it to the RIGIDIPEDES, and the alkaline odor shows a relationship to the FRAGILIPEDES. It appears to be closely related to *A. uranius*, from which it may be distinguished by its larger size, different color and pileus not expallent. The pileus is not hygrophanous, and is striate even in the dried state. The lamellæ in the dried plants are brownish, with the edge nearly white.

Agaricus (Mycena) purpureofuscus, *n. sp.*

Pileus membranous, campanulate or convex, obtuse, glabrous, striate, purplish-brown; lamellæ ascending, lanceolate, subdistant, adnate, white or whitish, purplish-brown on the edge; stem slender, even, hollow, glabrous, with white hairs at the base, colored like the pileus or a little paler; spores sub-globose or broadly elliptical, .00025 to .0003 in. long, .00025 broad.

Plant 1 to 3 inches high, pileus 4 to 8 lines broad, stem scarcely 1 line thick.

Mossy prostrate trunks of spruce trees in woods. Caroga. July.

This species belongs to the section CALODONTES, and is so closely related to *A. rubromarginatus*, that it is with some hesitation that I have separated it. Because of its darker color and the absence of the hygrophanous character of that species, it has seemed best to keep it distinct. Its even, not striated, stem forbids its reference to *A atromarginatus*.

Agaricus discopus, *Lev.*

Base of dead fern stems. Sandlake and Karner. Sept. and Oct.

The bulb at the base of the stem in our specimens is not as distinct as in the published figures of the species, but in other respects the specific characters are present.

Agaricus hiemalis, *Osbeck.*

Prostrate trunk of spruce, *Abies nigra*. Adirondack mountains June.

The specimens agree very well with the description of the species, but they appear to have occurred out of season.

Agaricus scyphoides, *Fr.*

Bare soil and on decaying wood. South Ballston. Aug.

Agaricus jubatus, *Fr.*

Damp ground in thin woods. West Albany. Sept.

The specimens were few in number and not fully developed. The pileus was conical, and clothed with a short, close, velvety pubescence, and the stem was solid. In these respects the specimens do not agree well with the description of the species, although bearing a striking resemblance to the figure of the species in Mycological Illustrations. We have, therefore, for the present, referred them to this species.

Agaricus (Clitopilus) unitinctus, *n. sp.*

Pileus thin, flexible, convex or nearly plane, centrally depressed, glabrous, subshining, sometimes concentrically rivulose, grayish-brown; lamellæ narrow, moderately close, adnate or slightly decurrent, colored like the pileus; stem slender, straight or flexuous, subtenacious, equal, stuffed, slightly pruinose, grayish-brown, with a close, white mycelioid tomentum at the base, and white, root-like fibres of mycelium penetrating the soil; spores elliptical, .0003 in. long, .0002 broad; flesh whitish or grayish-white, odor almost none, taste mild.

Plant 1 to 2 inches high, pileus 6 to 12 lines broad, stem about 1 line thick.

Thin pine woods. Karner. Oct.

The species is apparently related to *A. cicatrisatus.*

Agaricus atrides, *Lasch.*

Damp ground in woods. Caroga. July.

This species differs from *A. serrulatus* by its decurrent lamellæ, and from *A. Watsoni* by its darker color and blackish denticulations on the edge of the lamellæ.

Agaricus villosus, *Fr.*

Prostrate trunks of poplars. West Albany. Aug.

Our specimens are pale-yellow or buff, becoming darker with age. In other respects they correspond to the characters of the species.

Agaricus comosus, *Fr.*, **var. albus,** *Pk.*

Trunks of horsechestnut. Albany. Oct.

Two specimens only were found. These were white, becoming tinged with yellow in drying. The typical form of the species is tawny. From *A. destruens*, with which our specimens agree more closely in color, the viscidity of the pileus will separate them. The spores are ferruginous, .0003 to .00035 in. long, .0002 to .00025 broad.

Agaricus (Inocybe) umboninotus, *n. sp.*

Pileus broadly campanulate or expanded, prominently umbonate, rimose-fibrillose, dark-brown ; lamellæ at first whitish, then ferruginous-brown ; stem equal or slightly thickened at the base, solid, fibrillose, paler than the pileus, pruinose at the apex ; spores nodulose, .0003 to .00035 in. broad.

Plant 1.5 to 2 inches high, pileus 6 to 10 lines broad, stem 1 to 2 lines thick.

Mossy ground in woods. Caroga. July.

Its spores separate it from *A. rimosus*, and its prominent umbo from *A. asterosporus*.

Agaricus (Inocybe) maritimoides, *n. sp.*

Pileus subconical or convex, dry, obtuse, densely squamulose with small erect or squamose-fibrillose scales, fibrillose on the margin, dark-brown ; lamellæ close, rounded behind and adnexed, ventricose, whitish, becoming brownish-ochraceous ; stem equal, solid, fibrillose, paler than the pileus ; spores irregular, angular, brownish-ochraceous, .0003 to .00035 in. long, .0002 to .00025 broad.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem 2 lines thick.

Thin woods. Karner. Oct.

Apparently related to *A. maritimus*, but not hygrophanous. The spores are slightly angular, resembling in shape those of species of Entoloma and other Hyporrhodii, but are scarcely nodulose.

Agaricus (Inocybe) comatellus, *n. sp.*

Plate 2, figs. 5–8.

Pileus submembranous, convex or expanded, clothed with whitish or gray hairs, fimbriate on the margin ; lamellæ subdistant, adnexed, pale-tawny ; stem equal, solid, flexuous, pallid or reddish-brown, a little darker above, slightly mealy or pruinose-hairy, with a white mycelium at the base , spores subelliptical, even, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant 6 to 12 lines high, pileus 2 to 4 lines broad, stem scarcely half a line thick.

Sticks and bark buried under fallen leaves. Caroga. July.

A small species remarkable for the hairy covering of the pileus. This is sufficiently dense to give to the pileus a whitish or pale-gray appearance. The species is apparently related to *A. tricholoma*, A. & S., and *A. strigiceps*, Fr.

Agaricus (Inocybe) subexilis, *n. sp.*

Pileus thin, convex or subcampanulate, then expanded, umbonate, fibrillose on the margin, at first pale chestnut color, then yellowish or subochraceous, lamellæ narrow, rather close, rounded behind, subventricose, whitish, becoming dull-ochraceous ; stem equal, solid, flexuous, minutely pruinose, finely striate under a lens, pinkish, then yellowish ; spores subglobose, nodulose, about .0003 in. in diameter.

Plant 8 to 12 lines high, pileus 3 to 5 lines broad ; stem about .5 line thick.

Damp, mossy ground, in woods. Caroga. July.

A very small species, related to *A. paludinellus*, from which it differs in its smaller size, shape of the spores and brighter colors of the pileus.

Agaricus (Hebeloma) sordidulus, *n. sp.*

Pileus thin, rather firm, convex, viscid when moist, dingy brownish-red or tawny-brown, paler or whitish on the margin, flesh white, with a radish-like odor; lamellæ broad, close, rounded behind, slightly adnexed, pallid, then brownish-ochraceous; stem short, equal, stuffed or hollow, slightly fibrillose, white, pruinose at the apex; spores subelliptical, .0005 to .00055 in. long, .00025 to .00028 broad.

Sandy soil, in open places. Karner. Oct.

Plant about 1 inch high, pileus 8 to 15 lines broad, stem 1.5 to 2 lines thick.

A small species, belonging to the section PUSILLI.

Agaricus (Hebeloma) parvifructus, *n. sp.*

Pileus convex, then expanded, slightly viscid, dingy-white, becoming grayish-brown or pale-chestnut colored with age, often paler on the margin; lamellæ broad, moderately close, slightly emarginate, at first white, then brownish-ochraceous; stem equal, silky-fibrillose, solid, whitish, stained with ferruginose or brown toward the base, pruinose and substriate at the apex; spores brownish-ochraceous, .00025 to .00028 in. long, .00016 to .00018 broad; veil white, arachnoid.

Plant three to four inches high, pileus two to three inches broad, stem three to five lines thick.

Sandy soil in pine woods. West Albany. Oct.

The spores of this plant are smaller than usual in species of this subgenus, and this character has suggested the specific name. The lamellæ are at first concealed by the copious, webby filaments of the veil. The species belongs to the section INDUSIATI.

Agaricus (Hypholoma) madeodiscus, *n. sp.*

Pileus thin, convex, becoming nearly plane, hygrophanous, pale chestnut or reddish brown when moist, grayish-tawny or pale-ochraceous and rugose on the disk when dry, the margin, when young, slightly silky-fibrillose; lamellæ close, slightly emarginate, whitish, then brown; stem equal or slightly thickened at the base, hollow, white, sub-silky; spores brown, elliptical, .00035 to .0004 in. long, .00025 broad.

Plant 2 to 3 inches high, pileus 1 to 2 inches broad, stem 2 to 3 lines thick.

Decaying wood in wet places. Adirondack mountains. June.

This species differs from *A. appendiculatus*, its nearest ally, by its larger size, less rugose pileus and larger spores. Also, it is unlike that species in parting with the moisture of the margin of the pileus first, the disk retaining it some time, a character which is suggestive of the specific name. I have not seen the plant growing in tufts. The veil is whitish and very delicate, and at first conceals the lamellæ from view. It at length adheres in fragments to the margin of the pileus.

Agaricus (Psilocybe) cærulipes, *n. sp.*

Pileus thin, subcampanulate, then convex and obtuse or obtusely umbonate, glabrous, hygrophanous, slightly viscid, watery brown and striatulate on the margin when moist, yellowish or subochraceous when dry, the disk sometimes brownish ; lamellæ at first ascending, close, adnate, grayish-tawny, becoming ferruginous-brown, whitish on the edge ; stem slender, equal, flexuous, tenacious, hollow or containing a separable pith, slightly fibrillose, pruinose at the apex, bluish, sometimes whitish at the apex ; spores elliptical, .0003 to .0004 in. long, .00016 to .0002 broad.

Plant single or cæspitose, 1 to 1.5 in. high, pileus 5 to 10 lines broad, stem scarcely 1 line thick.

Decaying wood. South Ballston. Aug.

The species is easily recognized by the peculiar blue color of the stem. Sometimes the pileus also assumes a blue color where bruised.

Corprinus lagopus, *Fr.*

Decaying wood and vegetable mold in woods. South Ballston. Sept.

Cortinarius multiformis, *Fr.*

Pine woods. Karner. Oct.

Cortinarius decoloratus, *Fr.*

Pine woods. Karner. Oct.

Cortinarius (Dermocybe) aureifolius, *n. sp.*

Pileus convex, then plane or slightly depressed, densely fibrillose-tomentose, sometimes slightly squamulose, especially on the disk, cinnamon-brown ; lamellæ rather broad, moderately close, subventricose, rounded behind, adnexed, yellow, becoming yellowish-cinnamon , stem short, solid, equal, fibrillose, yellow, brownish within : spores oblong, .00045 to .0005 in. long, .00016 to .0002 broad ; flesh of the pileus yellow or pallid, odor like that of radishes.

Plant gregarious, 1 to 1.5 in. high, pileus 8 to 15 lines broad, stem 2 to 3 lines thick.

Sandy soil in thin pine woods. Karner. Oct.

The species resembles *C cinnamomeus* in color, but its short stem, longer spores and different habit easily distinguish it. Its general appearance is similar to that of some species of Inocybe.

Hygrophorus purpurascens, *Fr.*

Sandy soil under pine trees. Karner. Oct.

In our specimens the pileus is fibrillose rather than squamulose, the stem is slightly mealy at the apex, not roughened with purplish squamules, and there is a webby veil which, in the young plant, conceals the lamellæ and forms a slight but evanescent annulus. Should these differences between our specimens and the species to which we have referred them be constant, it may be necessary to separate our plant as a distinct species.

Lactarius hysginus, *Fr*

Mossy ground in woods and swamps. Caroga and Sandlake. July and Aug.

Lactarius varius, *Pk.*

Sandy soil. West Albany and Karner. Sept. and Oct.

Lactarius paludinellus, *Pk.*

Sphagnous marshes. Sandlake. Aug. For the descriptions of this and the preceding species of Lactarius see the article on the New York species of Lactarius.

Russula basifurcata, *n. sp.*

Pileus firm, convex, umbilicate, becoming somewhat funnel form, glabrous, slightly viscid when moist, the thin pellicle scarcely separable except on the margin, dingy-white, sometimes tinged with yellow or reddish-yellow, the margin nearly even; lamellæ rather close, narrowed toward the base, adnate or slightly emarginate, many of them forked near the base, a few short ones intermingled, white becoming yellowish; stem firm, solid, becoming spongy within, white; spores elliptical, pale yellow, uninucleate or shining, .00035 in. long, .00025 broad; flesh white, taste mild, then bitterish.

Pileus 2 to 3 inches broad, stem 8 to 12 lines long, 5 to 6 lines thick.

Dry hard ground in paths and wood roads. Caroga. July.

This species belongs to the section FRAGILES, but in some respects it closely resembles pale forms of *R. furcata*, from which it is separated by the absence of any silky micor and by the yellowish color and elliptical shape of the spores and by the yellowish hue of the lamellæ.

Lentinus suavissimus, *Fr.*

Dead willows, *Salix discolor*. Caroga. July. The strong but agreeable odor, resembling that of melilot, and the lamellæ crisped and anastomosing at the base readily distinguish this species, which is apparently very rare with us.

Boletus sulphureus, *Fr.*

Thin woods. Caroga. July.

But a single specimen was found and this does not fully agree with the description, but it is for the present placed here.

Boletus versipellis, *Fr.*

Sandy soil. West Albany and Karner. Oct.

This species so closely resembles some forms of *B. scaber* that it is not surprising that Persoon regarded it as a variety of that species. The reddish color, dry pileus and appendiculate margin are the most available distinguishing characters of the species. It is apparently quite rare.

Polyporus abortivus, *Pk.*

Buried sticks and decomposing vegetable matter. South Ballston. Aug. and Sept.

This species is remarkable for the abundance of its spores. It is so deformed and apparently imperfect in its development that such fruitfulness would scarcely be expected. The pileus, when sufficiently developed to be recognizable, is of a reddish or alutaceous color.

Polyporus epileucus, *Fr.* var. candidus, *Pk.*

Decaying prostrate trunks of hemlock, *Abies canadensis.* Osceola, Lewis county. Aug.

Pileus snowy-white, scrupose, scarcely villose, somewhat fibrous within and slightly zonate toward the margin; pores plane or convex.

Our specimens, while not agreeing fully with the published characters of *P. epileucus*, approximate so closely to them that we have characterized this form as a variety.

Polyporus crispellus, *n. sp.*

Pileus thin, fleshy, laterally elongated, undulate or subcrispate on the margin, radiate-rugose, subglabrous, whitish varied with brownish zones, flesh white, marked by a few linear hyaline or slightly colored zones; pores short, about equal in length to the thickness of the pileus, minute, subrotund, white, the thin dissepiments more or less dentate.

Pileus 8 to 12 lines broad, extending laterally 1 to 4 inches.

Prostrate trunks of hemlock. Osceola. Aug.

Closely allied to *P. destructor*, but distinguished by its zonate pileus and short pores. It is also apparently thinner and more undulate than that species.

Polyporus (Physisporus) lætificus, *n. sp.*

Effused, thin, tender, not readily separable from the matrix, bright orange with a subtomentose yellowish margin; tubes short, often oblique minute, subrotund, the dissepiments thick, obtuse.

Decaying wood. South Ballston. Aug.

The fungus forms patches two or three inches long, following the inequalities of the surface. In the dried state the pores appear like little ruptured vesicles as in *P. vesiculosus*, B. & C. The species appears to approach *P. fulgens*, Rost., which has the margin white fibrillose and the pores acute.

Polyporus (Physisporus) griseoalbus, *n. sp.*

Effused, thin, tender, adnate, uneven, scarcely margined, indeterminate, grayish-white, with a thin pulverulent subiculum; pores very minute, subrotund, often oblique.

Soft decaying wood of deciduous trees. Osceola. July.

The pores are sometimes collected in little heaps or tubercles as in *P. molluscus* and *P. Vaillantii.* In the dried state they are slightly tinged with creamy yellow.

Polyporus (Physisporus) fimbriatellus, *n. sp.*

Widely effused, thin, tenacious, separable from the matrix, with a thin white fimbriate margin and a white subiculum, running into rhizomorphoid branching strings of mycelium or forming a somewhat reticulate fimbriate membrane ; pores minute, subrotund, equal, whitish inclining to cream color.

Under side of prostrate trunks of maple, forming extensive patches on the wood and bark. Osceola. Aug.

By its rhizomorphoid mycelium this species is related to *P. Vaillantii*, but the pores are smaller and not collected in heaps as in that species. By reason of its tenacious substance it is readily separable even from an irregular matrix

Polyporus (Physisporus) ornatus, *n. sp.*

Effused, 1 to 2 lines thick, somewhat tenacious, adnate or inseparable from the matrix, white, the surface slightly undulate or uneven, the margin definite, studded with drops of moisture when fresh, spotted with dot-like depressions when dry ; pores subrotund, minute, unequal, often oblique.

Decaying prostrate trunks of deciduous trees. Osceola. Aug.

This species is at once distinguished by its adnate subiculum and its peculiarly spotted margin. The spots are watery white in the fresh state and each one is covered by a drop of moisture. In the dried plant the place previously occupied by the drop of moisture becomes a small depression in the subiculum.

Polyporus (Physisporus) odorus, *n. sp.*

Effused, 2 to 3 lines thick, even, firm but brittle, moist, separable from the matrix, white, sometimes stained with reddish-yellow on the abrupt, rather thick, slightly fimbriate margin ; pores very minute, rather long, equal, entire, white, arising from a thin but distinct subiculum ; odor strong, disagreeable.

Under surface of decorticated prostrate trunks of spruce. Osceola. Aug.

It forms patches several inches broad and sometimes more than a foot long. It is distinguished from *P. vulgaris* by being separable from the matrix, moist, having longer pores and a strong odor. From the next following species it may be known by its smaller pores, more brittle texture and its different odor.

Polyporus (Physisporus) subacidus, *n. sp.*

Effused, separable from the matrix, tenacious, flexible, uneven, determinate, the margin downy, narrow, pure white ; pores small, subrotund, 1 to 3 lines long, often oblique. whitish inclining to dingy-yellowish pale tan color or dull cream color, the dissepiments thin, more or less dentate ; odor strong, subacid.

Prostrate trunks and decaying wood of various trees, hemlock, spruce, birch, etc. Osceola. July.

This species is not rare, but it has probably been confused with its allies. It forms extensive patches, sometimes several feet in length. It adheres somewhat closely to the matrix, but its texture is so tough that it is generally easy to strip it from its supporting substance. It is apparently closely related to *P. medulla-panis*, but the description of that species gives the pores as medium size and entire, and makes no mention of any odor, in consequence of which we have thought our plant distinct. It is, however, extremely variable.

Var. *tenuis* is very thin, scarcely a line thick, with short pores and the surface nearly even. It occurs on the smooth decorticated trunks of hemlock.

Var. *tuberculosus* has the surface more or less roughened by unequal prominent tubercles, which are either scattered or clustered. They appear to be a monstrous development of the mycelium on the surface of the pores.

Var. *stalactiticus* incrusts mosses and therefore has the surface very uneven with numerous and unequal porous protuberances. It most often occurs on prostrate mossy trunks of birches.

Var. *vesiculosus* (*P. vesiculosus*, B. & C.) has shallow scattered pores as if formed from ruptured vesicles.

Specimens of this Polyporus, unless dried under pressure, shrink and roll up in unmanageable shapes. They often contain considerable moisture when collected, and if put in press in this condition they are liable to become brown or blackish in drying. Specimens collected in a dry time or in dry situations retain their characters best. The thinner forms, if partly dried before they are put in press, sometimes retain their color and characters well. When growing on bark the patches are sometimes interrupted and irregular, in which case the margin is broader than usual and well defined.

Merulius (Resupinati) aurantiacus, *n. sp.*

Effused, membranous, tender, very soft, separable from the matrix, pale orange color, the subiculum soft, silky-tomentose, whitish and pale orange ; hymenium gyrose-plicate and dentate, becoming paler with age ; spores broadly elliptical, .00025 in. long, .0002 broad.

Soft decayed wood of hemlock. Osceola. Aug.

The species is distinguished by its soft tomentose texture and its orange hues. It is closely related to *M. aureus* but is at once distinct by its orange, not golden, color. The subiculum is composed of a stratum of whitish filaments next the matrix and another of orange color next the hymenium. Hence the margin in young plants is generally whitish. In mature ones the whole becomes orange colored. Notwithstanding the tender substance the membrane is separable from the matrix and pieces three or four inches in extent are thus obtainable.

Merulius fugax, *Fr.*

Soft decayed wood of deciduous trees. Osceola. Aug.

This has the tender, soft and delicate texture of the preceding species, but it is at first of a pure white color. Soon the hymenium assumes a creamy or yellowish hue and the folds appear, but there is often a wide margin destitute of them. In drying, the folds mostly collapse and disappear and the hymenium often becomes tinged with incarnate or flesh color. The wood on which it usually grows is so much decayed that it easily crumbles to pieces. Nevertheless the plant is separable from its matrix.

The spores are oblong, .0003 in. long, .0001 broad.

Geaster striatus, *DC.*

Sandy soil. Karner. Sept.

When the external peridium first opens and expands the inner peridium appears to be globose and sessile, but as the plant matures and dries the inner peridium is seen to be narrowed below and raised on a short pedicel.

Phyllosticta Labruscæ, *Thum.*

Living leaves of grapevines, *Vitis Labrusca.* Highland Mills, Orange county. July.

This differs from *P. viticola* in its more numerous, larger and more prominent perithecia and in its larger spores.

Phyllosticta Epigææ, *n. sp.*

Spots large, irregular, brown or reddish-brown; perithecia minute .0045 to .0055 in. broad, covered by the epidermis, erumpent, epiphyllous, black; spores elliptical, colorless, .0003 in. long, .00016 broad.

Living leaves of trailing arbutus, *Epigæa repens.* Caroga. July.

Phyllosticta lantanoidis, *n. sp.*

Spots rather large, suborbicular, cinereous, sometimes with a brown margin; perithecia minute, .004 in. broad, slightly prominent, epiphyllous, black; spores elliptical, colorless, binucleate, .00025 to .0003 in. long, .00016 broad.

Living leaves of hobble bush, *Viburnum lantanoides.* Caroga. July.

This differs from *P. tinea* Sacc. in the larger size and binucleate character of the spores.

Phyllosticta Podophylli, *Winter.*

Living leaves of mandrake, *Podophyllum peltatum.* Albany. June.

Externally this resembles *Ascospora Podophylli* Curt., but the spores are very different.

Ascochyta Cassandræ, *n. sp.*

Spots suborbicular or irregular, reddish-brown or grayish with a reddish-brown margin; perithecia epiphyllous, minute, erumpent, blackish; spores oblong-fusiform, acute at each end, uniseptate, colorless, .0004 to .00065 in. long, .00012 to .00016 broad.

Living leaves of leather-leaf, *Cassandra calyculata.* Adirondack mountains. June and July.

Ascochyta colorata, *n. sp.*

Plate 2, figs. 9 and 10.

Spots indefinite, often confluent, red with a brownish center, paler on the lower surface; perithecia minute, .004 to .005 in. broad, black; spores oblong, somewhat pointed at one or both ends, straight or curved, slightly constricted in the middle, obscurely uniseptate, colorless, .0007 to .001 in. long, .0003 to 00035 broad.

Living leaves of strawberry, *Fragaria Virginiana.* West Albany. Aug.

This differs from *A. Fragariæ* Sacc. in the color of the spots and in the size and character of the spores.

Phoma Phytolaccæ, *B. & C.*

Dead stems of poke weed, *Phytolacca decandra*. Albany. June.

In our specimens the spores are a little longer than the dimensions given in the description of the species and the perithecia are sometimes slightly compressed or subhysteriiform.

Phoma elevatum, *n. sp.*

Perithecia numerous, small, rotund, oval or hysteriiform, sunk in the matrix but occupying small elevations or ridges, black; spores ovate or subelliptical, colorless, .0003 in. long, .00016 broad.

Decorticated wood of deciduous trees. Adirondack mountains. June.

The marked feature of the species and one suggestive of the name is the position of the perithecia. Each one occupies a minute ridge or pustular elevation of the wood.

Phoma Pruni, *n. sp.*

Perithecia small, slightly prominent, subconical, at first covered by the epidermis, then erumpent, black; spores oblong-elliptical or subfusiform, binucleate, hyaline, .00035 to .00045 in. long, .00012 to .00016 broad, supported on equally long or longer sporophores.

Dead branches of choke cherry, *Prunus Virginiana*. Karner. June.

Phoma albifructum, *n. sp.*

Perithecia numerous, large, .02 to .03 in. broad, conical or subhemispherical, sometimes irregular and two or three confluent, erumpent, black; spores oblong-fusiform, acute at each end, two to four-nucleate, colorless, .00065 to .00085 in. long, .0002 to .00025 broad, oozing out and forming a white globule.

Dead bark of maple, *Acer rubrum*. Karner. June.

The perithecia and spores are unusually large for a Phoma and would seem to justify Prof. Saccardo's proposed genus Macrophoma.

Sphæropsis ribicola, *C. & E.*

Dead stems of *Ribes floridum*. Bethlehem, Albany county. May.

Sphæropsis alnicola, *n. sp.*

Perithecia numerous, .0014 to .002 in. broad, prominent, hemispherical, erumpent, sometimes confluent, forming black patches, spores oblong, colored, .0006 to .00095 in. long, .00035 to .0004 broad.

Dead branches of alder. West Albany. Apr.

S. Alni C. & E. has smaller spores and inhabits living branches.

Appendicularia, *gen. nov.*

Plate 3, figs. 1-4.

Perithecium thin, delicate, rostrate, supported on a filamentous pedicel and accompanied by an appendage at its base. Entomophilous.

This genus has been formed to receive the single species here described. Its name is suggested by the appendicular organ at the base of the perithecium and supported with it by the common pedicel.

Appendicularia entomophila, *n. sp.*

Perithecia oval, brown, .0045 to .0055 in. long, .0035 to .004 broad, tapering abruptly above into a long, pale, somewhat pointed, straight or slightly curved rostrum .008 to .0095 in. long and about one-tenth as broad, supported below by a pale pedicel .012 to .013 in. long, about one-tenth as broad; pedicel two-septate, slightly thickened at the apex and bearing on one side, at the base of the perithecium, an oblong appendage about .0016 in. long; spores narrowly fusiform, pointed at each end, septate near the middle, colorless, .0012 to .0018 in. long, about one-tenth as broad, escaping at the apex of the rostrum.

On small flies, *Drosophila nigricornis*, Nyack, Rockland county. March. *Rev. J. L. Zabriskie.*

Specimens of this minute but interesting fungus, beautifully mounted on microscopic slides, were sent me by Mr. Zabriskie, who discovered them on small flies in his cellar in March last. He writes that they appeared during the first warm days of Spring, but disappeared upon the return of colder weather a few days later. The fungus grows upon almost any part of the body, the head, thorax, abdominal rings and occasionally on the costæ of the wings, but most frequently on the legs. Attached to one leg sent me are seven well-developed specimens of the fungus and one or two imperfect ones. The whole fungus is about one-fortieth of an inch long, or less than one-third of a line. It would not, therefore, be readily seen by the untrained naked eye of an observer. The perithecium, which is of a beautiful amber-brown color in the mounted specimens, appears like an enlargement of the central part of the fungus, its long rostrum or beak extending above it nearly as far as its pedicel does below it. The pedicel has one septum a little below the perithecium and another a little below the middle. At the apex it is slightly thickened, which gives it a somewhat clavate shape, and this enlargement is obscurely marked by short transverse and longitudinal septa or wrinkles. On one side, at the base of the perithecium is the singular erect appendage, the office of which is involved in obscurity. It is even and glabrous on the side next the perithecium, but elsewhere it is roughened by short ascending projections or serrations.

The affinities of the fungus are not clear. The non-ascigerous perithecium, the long, slender rostrum and the free spores oozing out at its apex indicate a relationship to species of Sphæronema (a genus of imperfect fungi), but the delicate texture and filamentous pedicel are very unlike any thing in that genus. Possibly its true relationship may be with the Saprolegniæ, but for our present purpose it is placed with the imperfect fungi.

Sphærographium hystricinum, *Sacc.*

Plate 3, figs. 5–7.

Dead stems of *Viburnum nudum.* Caroga. July.

This is *Sphæronema hystricinum,* Ellis, and is possibly a condition of some species of Cenangium.

Sphærographium lantanoidis, *n. sp.*

Perithecia minute, terete or subconical, truncate at the apex, black; spores subfiliform, curved or flexuous, slightly narrowed toward each end, colorless, sometimes multinucleate, .0016 to .0025 in. long, oozing out and forming a whitish globule

Dead stems of *Viburnum lantanoides*. Adirondack mountains. June.

Gelatinosporium fulvum, *n. sp.*

Perithecia cæspitose, crowded, erumpent, externally pulverulent, pale-tawny, opening at the apex when moist and revealing the white spore-mass within ; spores elongated, curved, gradually tapering toward each end, colorless, .003 in. long.

Dead branches of birch, *Betula lutea*. Caroga. July.

This is the third species of this genus that has its habitat on birch.

Coniothyrium valsoideum, *n. sp.*

Perithecia cæspitose, crowded, erumpent, surrounded by the laciniæ of the ruptured epidermis, subglobose or angular from mutual pressure, black ; spores numerous, subglobose or ovate, colored, .0002 to .00025 in. long, nearly as broad.

Dead branches of alder. West Albany. Apr.

Septoria Ribis, *Desm.*

Living leaves of fetid currant, *Ribes prostratum*. Adirondack mountains. June.

Septoria alnicola, *Cke.*

Living leaves of alder, *Alnus incana*. Caroga. July.

Septoria Lysimachiæ, *West.*

Living leaves of *Lysimachia ciliata*. Osceola. Aug.

Septoria Dalibardæ, *n. sp.*

Spots small, whitish or cinereous, with a reddish-brown margin, perithecia minute, epiphyllous, few, black ; spores filiform, nearly straight, .0015 to .002 in. long.

Living leaves of *Dalibarda repens*. Caroga. July.

This species closely resembles *S. Waldsteiniæ*, but the spores are much longer than in that species.

Septoria Dentariæ, *n. sp.*

Spots large, suborbicular, indefinite, greenish, perithecia minute, numerous, slightly prominent, epiphyllous, black ; spores filiform, nearly straight, .0008 to .0012 in. long, oozing out in yellowish or amber-colored tendrils or masses.

Living or languishing leaves of pepper-root, *Dentaria diphylla* Adirondack mountains. June.

Septoria punicei, *n. sp.*

Spots two to four lines broad, indefinite, blackish-brown above, brown or reddish-brown below, perithecia hypophyllous ; spores very long, flexuous, filiform, white in the mass, .004 to .0045 in. long.

Living leaves of *Aster puniceus*. Caroga. July.

The species is well marked by its very long and very white spores.

Septoria Trillii, *Pk.*

Living leaves of *Trillium erectum.* Adirondack mountains. June.

Septoria fumosa, *n. sp.*

Spots angular or irregular, often confluent, smoky-brown or grayish-brown with a darker margin; perithecia epiphyllous, .0025 to .003 in. broad, black; spores filiform; .0012 to .002 in. long.

Living or languishing leaves of *Solidago Canadensis.* Albany. June.

The spores are shorter than those of *S. Virgaureæ.*

Septoria Diervillæ, *n. sp.*

Spots suborbicular, whitish or cinereous, with a broad indefinite brown or purplish-brown margin; perithecia epiphyllous, minute, black; spores filiform, curved or flexuous, very slender, .001 to .0016 in. long.

Living or languishing leaves of *Diervilla trifida.* Adirondack mountains. June.

The spots, which are at first brown or purplish-brown, at length become paler and arid in the center, and on this central part the perithecia appear.

Rhabdospora subgrisea, *n. sp.*

Perithecia numerous, punctiform, depressed, black, covered by the epidermis, generally forming long, indefinite, grayish-brown spots; spores filiform, straight or curved, .0012 to .0025 in. long.

Dead stems and galls of various species of Solidago. Albany. *G. W. Clinton.* West Albany. Apr. and May.

Diplodia pinea, *Kx.*

Dead bark of pine, *Pinus Strobus.* West Albany. May.

In our specimens the spores are .0008 to .0014 in. long and .0005 to .0007 broad, which is somewhat less than the dimensions given in the description. Our plant is, therefore, distinguished as variety *corticola.*

Staganospora Smilacis, *Sacc.*

Living leaves of *Smilax herbacea.* Albany. *G. W. Clinton.* West Albany. May.

The spots closely resemble those of *Sphæropsis smilacina*, Pk., *Phoma smilacina*, Sacc., which may be an immature or imperfectly developed form of the same species. It is *Ascochyta Smilacis,* E. & M.

Glœosporium Ribis, *Cast.*

Living or languishing leaves of fetid currant, *Ribes prostratum.* Adirondack mountains. June.

In our specimens the spores are a little longer than in our European specimens and longer than the dimensions given in some of the descriptions, but I see no other difference

Glœosporium Salicis, *West.*

Languishing leaves of *Salix longifolia.* North Greenbush. Sept.

Our specimens have the spores either simple or two or three-nucleate and generally a little thicker toward one end. In size they are .0006 to .0009 in. long, .0003 to .0004 broad. Fuckel considers the species as the stylosporous condition of *Trochila Salicis*, Tul. It is very unlike *Glœosporium salicinium*, Pk., which is rather a Septoglœum, though the septa are obscure.

Marsonia Quercus, *n. sp.*

Spots angular or suborbicular, whitish or reddish-gray, definite, nucleus hypophyllous; spores oblong or subcylindrical, straight or curved, slightly constricted in the middle, obscurely uniseptate, colorless, .0005 to .0006 in. long, .0001 to .00016 broad, oozing out and forming a reddish or reddish-amber colored tendril or mass.

Living leaves of *Quercus ilicifolia*. Karner. Aug.

Pestalozzia monochætoidea, *S. & E.*

Dead stems of nine-bark, *Spiræa opulifolia*. West Albany. Apr.

Ramularia Diervillæ, *n. sp.*

Plate 1, figs. 16–18.

Spots suborbicular, whitish or cinereous with a dark-brown margin, definite; flocci amphigenous, minute, tufted; spores cylindrical, colorless, .0005 to .001 in. long, .00008 to .00016 broad.

Living leaves of *Diervilla trifida* Adirondack mountains. June.

Ramularia multiplex, *n. sp.*

Spots large, sometimes occupying the whole leaf, red or greenish-yellow, becoming brown when old, the lower surface, and sometimes both surfaces, frosted by the fungus; flocci and spores whitish or subcinereous, the latter very variable, subglobose elliptical, oblong or cylindrical, .00016 to .002 in. long, .00016 to .0002 broad, sometimes catenulate.

Living leaves of cranberry, *Vaccinium Oxycoccus*. Caroga. July.

Ramularia Prini, *n. sp.*

Plate 1, figs. 19–21.

Spots small, suborbicular, cinereous or whitish, with a brown margin, definite; spores hypophyllous, oblong or subfusiform, colorless, .0005 to .0009 in. long, .00016 to .0002 broad.

Living leaves of *Ilex verticillata*. Caroga. July.

The spores are tufted, but so minute that they are scarcely visible to the naked eye. This and the two preceding species are referred to the genus Ramularia with some hesitation. The hyphæ are minute and obscure, and I have seen no septate spores, but in other respects they appear to belong here. The next species, which rarely has uniseptate spores, forms a connecting link between these and the succeeding one.

Ramularia Oxalidis, *Farl.*

Plate 1, figs. 13-15.

Living leaves of wood sorrel, *Oxalis acetosella*. Adirondack mountains. June.

Cylindrosporium veratrinum, *S. & W.*

Plate 1, figs. 10–12.

Living leaves of Indian poke, *Veratrum viride*. Adirondack mountains. June.

This fungus appears to me to be ambiguous, between the genera Cylindrosporium and Ramularia. Distinct, though short hyphæ are present; and the spores are very long and clearly septate, in violation of the generic character of Cylindrosporium. The fungus is sometimes either associated with or followed by oblong black spots or patches, which are sometimes confluent, and which bear minute black perithecia containing oblong or cylindrical spore-like bodies about .0002 in. long.

Ovularia moniloides, *E. & M.*

Plate 2, figs. 1-4.

Living leaves and dead branches and aments of sweet gale, *Myrica Gale*. Adirondack mountains. June.

A very variable species. Sometimes the spots are few and scattered, again they are numerous, small or large, and often confluent, occupying nearly the whole leaf. Sometimes the fungus extends to the branches, both dead and living, which it surrounds with its white flocculent patches.

Peronospora Arthuri, *Farl.*

Living leaves of evening primrose, *Œnothera biennis*. Albany. June.

Peronospora Halstedii, *Farl.*

Living leaves of *Ambrosia trifida*. North Greenbush. Sept.

This often grows upon the spots occupied by *Protomyces polysporus*.

Peronospora Potentillæ, *De By.*

Living leaves of purple avens, *Geum rivale*. Adirondack mountains. June.

Entyloma Saniculæ, *n. sp.*

Plate 1, figs. 7-9.

Spots numerous, small, close or subconfluent, orbicular or subangular, varying in color from whitish or greenish to brown or reddish-brown; conidia amphigenous, filiform or linear, straight or curved, colorless, .0012 to .0024 in. long, .00008 to .0001 broad. Sometimes plurinucleate; spores subglobose, .00055 to .00065 in. broad.

Living leaves of sanicle, *Sanicula Marilandica*. North Greenbush. May.

The very long slender conidia are a distinguishing feature in this species.

Cercospora Violæ, *Sacc.*

Living leaves of violets, *Viola blanda*. Osceola. Aug.

In our specimens the spores are shorter than the dimensions given for the type, from which it is probable that they are a variety. They are .003 to .004 in. long, but pluriseptate as in the typical specimens.

Cercospora Cephalanthi, *E. & K.*

Living leaves of *Cephalanthes occidentalis*. Karner. Aug.

Cercospora Comari, *n. sp.*

Plate 1, figs. 1-3.

Spots irregular, indefinite, sometimes confluent, reddish-brown; flocci minutely tufted, amphigenous, slender, flexuous, colored, .005 to .0065 in. long, .0002 broad; spores clavate, obscurely two to three septate, slightly colored, .002 to .003 in. long, .0003 broad in the widest part.

Living leaves of *Potentilla palustris* (Comarum palustre). Karner. July.

Cercospora Majanthemi, *Fckl.*

Living leaves of two-leaved Solomon's Seal, *Majanthemum bifolium.* Caroga. July.

Our specimens vary a little from the description of the species to which we have referred them, but they are probably only an American variety of the species. The spots are margined with red or brownish-red and the spores are nucleate, but I have not seen them septate. They appear to rise from a minute reddish or pink-colored tubercle.

Hadrotrichum lineare, *n. sp.*

Plate 1, figs. 4-6.

Flocci amphigenous, densely cæspitose, subflexuous, black, forming oblong or linear black sori; spores terminal, ovate, oblong-ovate or oblong-pyriform, colored, .00065 to .0011 in. long, .00045 to .00055 broad, sometimes becoming constricted in the middle.

Living and dead leaves of *Calamagrostis Canadensis.* Adirondack mountains. June.

I have referred this fungus provisionally to the genus Hadrotrichum, although it does not rigidly agree with the description of that genus, in which the flocci are characterized as short. In our plant they are .002 to .003 in. long. By their tufted mode of growth they appear to deviate from the allied genus Monotospora. The spores, so far as observed, do not become definitely uniseptate, though in a few instances the endochrome seemed to be divided and the spores constricted in the middle as if about to multiply by division. They are colored, but are slightly paler than the flocci. These form definite linear or oblong sori or patches which are often parallel and sometimes repeatedly interrupted and look like a series of dots. At first sight they might be mistaken for some species of Puccinia.

Cenangium balsameum, *n. sp.*

Receptacle single or cæspitose, sessile, erumpent, externally black or blackish, greenish-yellow within, disk plane or convex, blackish bay-red or greenish-yellow when moist, black and somewhat uneven when dry; asci clavate, .004 to .0055 in. long, .0005 to .0006 broad; spores oblong or subfusiform, sometimes slightly curved, simple, greenish-yellow, .0008 to .0012 in. long, about .0003 broad.

Dead branches of balsam, *Abies balsamea.* Caroga. July.

This has probably been confused with *C. ferruginosum*, which it somewhat resembles, but the spores are much larger than the dimensions ascribed to the pores of that species, and larger than the spores in the specimens of that species in Mycotheca Universalis.

Sphærotheca pannosa, *Lev.*

Living leaves of wild rose, *Rosa parviflora* Ehrh. West Albany. Aug.

Microsphæria Nemopanthis, *n. sp.*

Mycelium arachnoid, thin, amphigenous; appendages few, five to twelve, equal to or a little longer than the diameter of the perithecia, terminally four or five times dichotomous, colored, sometimes forked near the base, the ultimate ramuli recurved; asci about four; spores six to eight.

Living leaves of *Nemopanthes Canadensis.* Karner. Sept.

The species is apparently allied to *M. Berberidis*, from which it is separated because of its fewer asci and colored appendages.

Capnodium Citri, *B. & D.*

On oranges, Albany. Not ascigerous. Introduced with the fruit which it inhabits.

Asterina nuda, *n. sp.*

Plate 2, figs. 11-15.

Perithecia numerous, closely gregarious or crowded, superficial and naked or with a few short obscure radiating filaments at the base, globose or subdepressed, .003 to .004 in. broad, black; asci oblong or subcylindrical, .0016 in. long, .0005 broad; spores crowded or biseriate, oblong, uniseptate, colorless, .0004 to .0005 in. long, .0002 to .00025 broad.

Dead leaves of balsam fir, *Abies balsamea.* Adirondack mountains. June.

Externally this species resembles *Sacidium Pini*, but its fruit is very different. The perithecia are generally arranged in three linear patches, one along the middle of the upper surface of the leaf and two on the lower surface, one on each side of the midvein. They are less numerous on the upper surface than on the lower, and are sometimes entirely absent there. The radiating mycelioid filaments are not always present, and but for the superficial perithecia the species might easily be referred to the genus Sphærella. The bilocular colorless spores indicate the section Asterella.

Valsa pauperata, *C. & E.*

Dead bark of maple, *Acer rubrum.* Karner. June.

In our specimens it is not uncommon to find a half dozen perithecia in one pustule, although in the typical form there are but two or three. A whitish or pale-grayish pulverulent disk often exists, which is at length obliterated by the black ostiola. The spores are .00064 to .0008 in. long, .0002 to .00025 broad, which is somewhat larger than the dimensions given in the description of *V. pauperata*, nevertheless we think our specimens are only a form or perhaps a variety of that species. The pustules are often arranged in long flexuous lines as in the type.

Valsa cornina, *n. sp.*

Pustules small, scattered, at first covered by the epidermis, which is at length longitudinally ruptured; perithecia two to five in a pustule, nestling in the inner bark, black, the ostiola scarcely exerted; asci clavate, blunt, .002 to .0024 in. long; spores collected in the upper part of the ascus, allantoid, .0006 to .0007 in. long, .00016 broad.

Dead branches of *Cornus paniculata*. Albany. Apr.

I have distinguished this species from others growing on Cornus, because of its different habit and larger spores.

Valsa Friesii, *Fckl.*

Dead bark of *Abies balsamea*. Adirondack mountains. June.

Valsa opulifoliæ, *n. sp.*

Pustules subconical or subhemispherical, erumpent; perithecia five to twenty in a pustule, nestling in the inner bark, crowded, often angular from mutual pressure, ostiola crowded, black, obliterating the grayish disk; asci subclavate, the sporiferous part .0012 to .0016 in. long, .00025 to .0003 broad; spores allantoid, crowded above, uniseriate below, .0004 to .0005 in. long, .00008 to .0001 broad.

Dead branches of *Spiræa opulifolia*. West Albany. Apr.

The species is apparently related to *V. pustulata* Aw., but the crowded ostiola are central on the disk. When the epidermis is torn away the pustules appear much like those of *V. colliculus* Wormsk.

Valsa leucostomoides, *n. sp.*

Pustules numerous, minute, covered by the epidermis which is pierced by the orbicular white or grayish disk; perithecia two to six or more in a pustule, the ostiola punctiform, black, dotting the disk; asci clavate or subfusiform, .0016 to .002 in. long, .00035 to .0004 broad; spores crowded, allantoid, colorless, .0005 to .00065 in. long, .00016 to .0002 broad.

Dead branches of sugar maple, *Acer saccharinum*. Helderberg mountains. May.

The very small size of the pustules and the minute white pulverulent disk give to this species an external appearance resembling that of *V. leucostoma* Fr., but there is no circumscribing black line and the species is apparently quite distinct and easily known by this character.

Diatrypella Frostii, *Pk.*

Dead stems of wild hazel-nut, *Corylus Americana*. West Albany Nov.

Diaporthe Wibbei, *Nits.*

Dead branches of sweet gale, *Myrica Gale*. Adirondack mountains. June.

The species is placed in the section Tetrastaga, but in our specimens there is no circumscribing black line. The spores are a little broader than the dimensions given in the description, being .0002 to .00025 in broad, and they sometimes terminate in a slight bristle-like point. In other respects the specimens agree well with the specific characters.

Diaporthe cylindrospora, *n. sp.*

Pustules valsoid, somewhat prominent, erumpent, scattered; perithecia numerous, fifteen to thirty or more, crowded, covered by the thin blackened surface of the inner bark, the ostiola rather long, crowded, exserted, about equalling the surrounding elevated epidermis, black; asci narrow, subfusiform, .0018 to .0022 in. long, .00025 to .0003 broad; pores subcylindrical, crowded or biseriate, quadrinucleate, colorless, .0005 to .00065 in. long, .00012 to .00016 broad.

Dead branches of wild bird cherry, *Prunus Pennsylvanica.* Adirondack mountains. June.

I have not been able to detect any distinctly septate spores, yet in every other respect this fungus evidently belongs to this genus, and I have thought best to refer it here for the present.

Didymosphæria Typhæ, *n. sp.*

Perithecia minute, punctiform, subglobose, covered by the epidermis, which is pierced by the scarcely papillate ostiolum; asci cylindrical, .0025 to .0035 in. long, .0003 to .0004 broad; spores oblong or elliptical, uniseriate, uniseptate, not at all or but slightly constricted at the septum, colored, .0004 to .0006 in. long, .0002 to .00025 broad; paraphyses filiform.

Base of dead leaves of *Typha latifolia.* Guilderland, Albany county. May.

Sphærella conigena, *n. sp.*

Perithecia small, scattered or gregarious, slightly prominent, erumpent, black; asci subcylindrical, .0025 to .0035 in. long, about .0005 broad; spores crowded, oblong-clavate, constricted at the septum, .0004 to .0005 in. long, .00016 to .0002 broad, the cells unequal, the lower one tapering downward, narrower than the subglobose or elliptical upper one.

Fallen cones of hemlock, *Abies Canadensis.* Helderberg mountains. May.

It differs from *S. Pinsapo* in its longer asci, and longer and differently shaped spores, as well as in its habitat. A similar, if not the same, species occurs on cones of *Thuja occidentalis* in the same locality, but owing to the immaturity of the fruit it is still in doubt.

Venturia Cassandræ, *n. sp.*

Plate 3, figs. 11–14.

Spots reddish-brown or brownish, sometimes with a grayish center; perithecia on one or both surfaces, minute, .0028 to .0032 in. broad, black, with a few short, straight, diverging black setæ above, .0012 to .0016 in. long; asci oblong, gradually and slightly narrowed above, .0016 to .0018 in. long, .0003 to .0004 broad; spores biseriate, oblong, quadrinucleate, .0005 in. long, .0002 broad.

Living leaves of *Cassandra calyculata.* Caroga. July.

The perithecia sometimes occur on the upper surface of the leaf, but oftener on the lower. They are so small that they are scarcely visible to the naked eye. Sometimes they emerge from beneath the scales of the leaf, and then they appear erumpent, although in reality they are superficial.

Leptosphæria Corallorhizæ, *n. sp.*

Plate 2, figs. 20–23.

Perithecia numerous, minute, .004 to .005 in. broad, erumpent, black, with a minute ostiolum; asci cylindrical, sessile, .002 to .003 in. long, .0003 to .00035 broad; spores crowded or biseriate, subfusiform, triseptate, slightly constricted at the middle septum, yellowish-brown, .0008 to .001 in. long, .00016 to .0002 broad.

Dead stems of *Corallorhiza multiflora*. Caroga. July.

Leptosphæria eutypoides, *n. sp.*

Perithecia numerous, closely gregarious, .01 to .011 in. broad, hemispherical or depressed, at first covered by the epidermis, then naked, black, ostiola papilliform; asci clavate or subcylindrical, .004 to .0045 in. long, .0005 to .00065 broad; spores ovate or oblong, straight or slightly curved, triseptate, usually constricted at the septa, yellowish-brown, .0008 to .0009 in. long, .0003 to .0004 broad, paraphyses filiform.

Dead stems of large herbs, as *Chenopodium album*. Albany. May.

The matrix becomes blackened, which, with the nearly uniform distribution of the numerous perithecia, is suggestive of the appearance of some species of Eutypa.

Leptosphæria lycopodiicola, *n. sp.*

Plate 2, figs. 16–19.

Perithecia small, .005 to .006 in. broad, sphæroid or elliptical, erumpent, black; asci subcylindrical, nearly sessile, .0025 to .003 in. long, .0003 to .0004 broad; spores oblong or subfusiform, slightly colored, three to five-septate, .0008 to .001 in. long, .00016 to .0002 broad.

Dead peduncles of *Lycopodium clavatum*. Adirondack mountains. June.

The perithecia are associated with a minutely tufted, blackish Cladosporium. Some of them are laterally compressed. The covering epidermis generally ruptures longitudinally. The spores are much more narrow in this than in *L. Crepini* and *L. Marcyensis*, both of which inhabit species of Lycopodium.

Metasphæria Myricæ, *n. sp.*

Plate 2, figs. 24–27.

Perithecia numerous, broadly conical, .016 to .021 in broad, covered by the thin closely-adhering epidermis, black, white within, ostiola pertuse; asci clavate, obtuse, .004 to .005 in. long, .0006 to .0008 broad; spores crowded or biseriate, oblong or subfusiform, straight or slightly curved, at first uniseptate, quadrinucleate, strongly constricted at the middle septum, finally triseptate, colorless, .0012 to .0016 in. long, .0004 to .0005 broad; the paraphyses numerous, conglutinate.

Dead branches of *Myrica Gale* lying partly in water Caroga. July.

The epidermis is so closely adherent that the perithecia appear as if superficial or merely innate at the base. The nuclei of the spores are large. Spores with three septa are rare, but this may be due to the immature condition of the specimens.

Sphærulina sambucina, *n. sp.*

Perithecia minute, numerous, closely gregarious, unequal and irregular, orbicular, oblong or even flexuous, covered by the epidermis, erumpent, opening by a pore or a narrow chink, black, asci clavate or subcylindrical, .003 to .005 in. long, about 0005 broad, aparaphysate; spores crowded or biseriate, oblong-clavate, constricted at the middle septum, five to seven-septate, colorless, .0009 to .0012 in. long, .0003 to .00035 broad, the lower half more narrow than the upper.

Dead branches of elder, *Sambucus Canadensis.* West Albany. May.

This is apparently related to *S. intermixta,* and, like that species, it is remarkable for its anomalous and irregular perithecia, but it is distinguished from it by its longer asci and longer spores, strongly constricted in the middle, and with more numerous septa.

Cryptospora Caryæ, *n. sp.*

Plate 2, figs. 28-31.

Pustules scattered, covered by the epidermis, erumpent, circumscribed by a black line or at length covered by a black crust beneath the epidermis, perithecia four to twelve in a pustule, globose or angulated by mutual pressure; ostiola crowded, rather prominent, subglobose, even, black; asci subclavate, .004 to .005 in. long, .0005 to .0006 broad, spores crowded or biseriate, subcylindrical, slightly narrowed toward one or both ends, granular within, at length spuriously three to five-septate by the division of the endochrome, colorless, .0016 to .0024 in. long, .00025 to .00032 broad

Dead branches of hickory, *Carya alba.* Knowersville. May.

The epidermis is loosened over the pustules and is generally ruptured in longitudinal chinks. When it is removed the blackened pustules are conspicuous. The spores are sometimes constricted in the middle.

Mazzantia sepium, *Sacc. & Penz.*

Dead stems of *Calystegia Sepium.* North Greenbush. May.

The spores in our specimens are a little larger than in the typical form and trinucleate.

D.

REMARKS AND OBSERVATIONS.

CAULOPHYLLUM THALICTROIDES, *L.*

A form occurs on the Helderberg mountains which bears two panicles, or clusters of flowers. One is much smaller than the other, and is usually about three flowered.

VIOLA CUCULLATA, *Ait.*

The variety with peduncles, much longer than the peticles (var. *longipes*), is common in wet places in the Adirondack region. It blossoms there about the middle of June.

HYPERICUM ELLIPTICUM, *Hook.*

A small form with stems eight to twelve inches high, and leaves erect and appressed, was found in wet places by the roadside in Caroga. This position of the leaves gives a peculiar aspect to the plants.

RHUS TYPHINA, *L.*

The form with laciniate leaves has been found near Nyack, Rockland county, by *Rev. J. L. Zabriskie.*

ROSA SETIGERA, *Mx.*

Low ground near West Albany. Introduced from the West.

RUBUS HISPIDUS, *L.*

Common in Caroga and not infrequent with five-foliate leaves on the young stems.

FEDIA RADIATA, *Mx.*

Wynantskill, Rensselaer county. *H. C. Gordinier.* This is a form with smooth fruit.

ARALIA NUDICAULIS, *L.*

A form with no leaf but with the scape bearing four to six umbels at the apex and a branch near or below the middle. This branch is terminated by a single umbel, and probably represents the usual leaf.

ARALIA HISPIDA, *Mx.*

This sometimes grows with great vigor in the Adirondack region. A specimen was found in Caroga, more than three feet high and bearing upwards of forty umbels, the large central and terminal one being two and a half inches in diameter.

CUPHEA VISCOSISSIMA, *Jacq.*

This plant appears to be gradually extending its range northward in the Hudson river valley. It has occurred in the vicinity of Pine Plains and at Salt Point, Dutchess county, and the past season it was detected near Catskill by Judge *Clinton.* On the authority of Drs. Stevenson and Knieskern it was reported in the State Flora as an inhabitant of the "northern part of the State," but I suspect this is a mistake.

TUSSILAGO FARFARA, *L.*

Abundant on clay banks about Albany and Troy. In rare instances the leaves appear while the plant is yet in flower. The rays assume a reddish hue with age and the scapes become elongated.

HIERACIUM AURANTIACUM, *L.*

This plant has become well established in many parts of the State and is still spreading. The past season it was observed in Fulton county, where it had evidently escaped from a flower garden to the roadside.

VACCINIUM PENNSYLVANICUM, *Lam.* var. NIGRUM.

Caroga, where it was growing sparingly with the ordinary form of the species.

CASTILLEIA COCCINEA, *Spreng.*

The usual habitat, ascribed to this species in the manuals, is wet meadows and sandy low grounds. In Springwater, Livingston county, and in Canadice, Ontario county, it was found by Mr. *D. Byron Waite* growing on the "tops and sides of bare dry and sterile hills, and where low shrubs and moss abound."

HYDRANGEA ARBORESCENS, *L.*

Wellsburg, Chemung county. *E. A. Burt.*

POTAMOGETON ROBBINSII, *Oakes.*

Hudson river near Rhinebeck. *H. Andrews.* The plants were sterile as usual.

HABENARIA ROTUNDIFOLIA, *Rich.*

Turin, Lewis county. July. *R. B. Hough.* This is the second locality in the State for this rare plant. Mr. Hough informs me that it is difficult to obtain perfect specimens of this plant, most of the flowers being injured, apparently by some insect.

TRILLIUM GRANDIFLORUM, *Salisb.* V. VARIEGATUM.

This interesting variety or form has the leaves petiolate and the petals variegated with green, which is usually in the form of a broad longitudinal stripe through the middle. It was discovered in dense woods near Jamesville, Onondaga county, by members of the Syracuse Botanical Club, and specimens were contributed to the Herbarium by Mrs. *L. L. Goodrich* and Mrs. *S. M. Rust.* It has also been found on Goat Island by Hon. *G. W. Clinton.* In the Jamesville locality it was associated with *Trillium erectum* and typical *T. grandiflorum.* In one specimen communicated by Mrs. Goodrich the petioles originate near the ground, the stem being very short. They are about three and a half inches long and the peduncle is five inches long. In other specimens these parts are less elongated and the form appears to be merged into the type. The specimens indicate a coincidence between the petioles, peduncles and green color of the petals. Generally the longer petioles are accompanied by longer peduncles and broader green stripes on the petals. This coincidence between form and color is remarkable.

JUNCUS TRIFIDUS, *L.*

Sam's Point, Shawangunk mountains. Prof. *N. L. Britton.* Probably this is the most southern station for this Juncus in our State. It occurs at Lake Mohunk and also on the high summits of the Adirondack mountains.

SCIRPUS POLYPHYLLUS, *Vahl.*

Catskill. *G. W. Clinton.* A rare species in our State.

SCIRPUS SYLVATICUS, *L.*

Wet places about half a mile south-east of Loudonville.

GLYCERIA FLUITANS, *L.*

Caroga lake. The form with long flat linear floating leaves, suggestive of the specific name, is not rare in the lakes of the Adirondack region, but it is not always fertile.

AIRA CÆSPITOSA, *L.*

Wet ground. Caroga. It was growing in company with *A. flexuosa* which usually inhabits dry, rocky, sterile hills.

MILLIUM EFFUSUM, *L.*

A tall glaucous-leaved form, is plentiful in woods in the Boreas river valley in Minerva, Essex county.

PELLÆA GRACILIS, *Hook.*

About the entrance of a limestone cavern, Minerva. The presence of limestone appears to be a necessity to this rare little fern. Although there are many localities in the Adirondack region which seem favorable to its growth, I have never observed it there except in the immediate vicinity of limestone, and as this is in limited quantity and scattered stations, this fern occupies there very isolated and limited localities. In the station mentioned it was in company with *Aspidium aculeatum* Sw. v. *Braunii.*

WOODWARDIA VIRGINICA, *Sm.*

Abundant in a marsh near Karner.

AGARICUS STIPITARIUS, *Fr.* V. SETIPES.

Stem elongated, straight, very slender, three to four inches long, scarcely as thick as a knitting needle. Caroga. July. Specimens of this species revive on the application of moisture, thus indicating a close relationship to species of Marasmius.

AGARICUS CLAVICULARIS, *Fr.*

This species is quite variable with us. Three or four forms or varieties were found growing under balsam trees in one locality in Caroga. Var. *albus* is wholly white. Var. *cinereus* has the pileus and stem pale cinereus; this is the most common. Var. *filipes* has the pileus small, two or three lines broad, and the stem very slender or filiform. When moist the stem is viscid, and in taking it from its place of growth the fingers are liable to slip from their grasp before the plant yields from its attachment to the ground, but when dry it is taken without difficulty. The pileus is not viscid, and by this character the species may be distinguished from *A. vulgaris.*

AGARICUS LEAIANUS, *Berk.*

This beautiful Agaric is common in the woods of all our hilly or mountainous districts, growing most frequently on dead trunks of beech, but often on those of other deciduous trees. In a single instance it was found growing on decaying wood of hemlock.

AGARICUS FIBULA V. CONICUS.

This singular variety has the pileus conical, not umbilicate, sometimes papillate. Mossy prostrate trunks in woods. Caroga. July.

AGARICUS ATROCÆRULEUS, *Fr.*

I have not yet found the plant with blue colors. It is brownish with us and villose with grayish densely tufted hairs, sometimes inclining to a cervine hue. On poplars. Karner. Sept.

AGARICUS RHODOPOLIUS, *Fr.* V. UMBILICATUS.

Pileus convex, umbilicate, 1 to 2 inches broad; lamellæ subdecurrent; stem elongated, slender, containing a small cavity. Karner. Sept. A slender variety growing with the ordinary form, but appearing quite unlike it.

TROGIA CRISPA, *Fr.* V. VARIEGATA.

Pileus and lamellæ variegated with bluish or greenish-blue stains. Sandlake. Sept.

BOLETUS VISCOSUS, *Frost.*

This name is antedated by *B. viscosus* Ventur., and if the Frostian species is a good one, it will be necessary to give it another name. It cannot be called *B. Frostii,* as there is already a species bearing that designation. Mr. Frost's plant is manifestly very near *B. granulatus* and may possibly be a variety of that species, although the two, as they occur with us, are readily distinguishable. They appear to have been united by European mycologists. The distinguishing characters are found in the color, glutinosity, glandular dots or sugary granules of the tubes and stem and in the comparative length of the stem. In Frost's plant the pileus is at first dark-chestnut color and covered with a thick tough gluten, appearing, as the author remarks, as if it "was enveloped in slime," but it becomes yellowish, tawny-yellow or reddish-yellow and less glutinous with age. The glandular dots are usually entirely absent from the mouths of the tubes and from the stem, but when present they are very minute and inconspicuous and occur chiefly at the top of the stem. This is very short, varying from one-half to one inch in length, so that "the pileus seems to rest upon the ground." In *B. granulatus*, the young pileus is much paler, though variable in color, and is less glutinous. It does not become conspicuously paler with age and the glandular dots or granulations, which suggest the name of the species, are readily seen on the tube mouths and stem. They usually dot the stem from top to base, though sometimes they are more conspicuous on the upper part. The stem is generally one to two inches long. This plant appears from midsummer to the end of the season, but I have only seen Frost's plant in late autumn. It is quite possible that the two plants run together, but from the character of the differences noted it seems to me to be best at present to keep them distinct, and for convenience of reference I would designate the Frostian species as *Boletus brevipes*, in allusion to its short stem. It grows in sandy soil under pine trees. Karner. Oct.

BOLETUS SCABER, *Fr.* V. NIVEUS.

Swamps. Karner. Oct. This is a beautiful variety, easily recognized by the white color of the pileus. This, however, becomes tinged with livid-blue or greenish-blue when old.

BOLETUS GRACILIS, *Pk.* V. LÆVIPES.

Stem destitute of reticulations. Otherwise like the tpyical form of the species. South Ballston. Sept.

POLYPORUS SULPHUREUS, *Fr.*

The young growing plant sometimes exudes a pale-yellow or sulphur-colored juice when cut or broken.

POLYPORUS VOLVATUS, *Pk.*

This is occasionally found on balsam trunks, *Abies balsamea.* Adirondack mountains. June.

POLYPORUS CONGLOMERATUS, *Pk.*

Prostrate trunks of beech. Osceola. Aug.

LYCOPERDON GIGANTEUM, *Batsch.*

A specimen of the obconic form mentioned by Fries was found near Coeymans, Albany county, by Mr. *John D. Parsons.*

MORTHIERA MESPILI, *Fckl.*

Living leaves of *Amelanchier Canadensis.* Caroga. July.

PUCCINIA CALTHÆ, *Lk.*

This species, which is rare in our State, was found in a wooded swamp in Caroga. July.

UROCYSTIS POMPHOLYGODES, *Schl.*

On *Thalictrum anemonoides.* Albany. *G. W. Clinton.*

CYSTOPUS CUBICUS, *De By.*

Radical leaves of *Senecio aureus.* Adirondack mountains. June. This species inhabits various species of compositæ, but does not appear to have been before found on Senecio.

GLOMERULARIA CORNI, *Pk.*

Hitherto found only on *Cornus Canadensis*, but now on *Lonicera ciliata* also. Adirondack mountains. June.

LOPHIOTREMA SPIRÆÆ, *Sacc.* V. ADULTUM.

This has the spores nine to eleven-septate. In the type they are seven-septate. West Albany. Apr.

DIAPORTHE SPICULOSA, *Nits.*

A form occurs on dead branches of *Spiræa opulifolia* without a limiting black line in the matrix. The perithecia are sunk in the wood, the surface of which becomes blackened.

HYPODERMA NERVISEQUUM, *Fr.*

Fertile specimens were found on balsam leaves in Caroga. July.

LOPHODERMIUM PETIOLICOLUM, *Fckl.* V. ACERINUM.

Perithecia narrowly elliptical or oblong; asci subclavate, .0025 to .003 in long, .0008 to .00035 broad; spores filiform, considerably shorter than the ascus. Fallen petioles of *Acer saccharinum.* Caroga. July.

E.

NEW YORK SPECIES OF LACTARIUS.

LACTARIUS, *Fr.*

[Galorrheus, Fr. Lactifluus, Hoffm.]

Hymenophorum fleshy, vesiculose, continuous with the fleshy stem; lamellæ unequal, adnate or decurrent, acute on the edge, exuding a milky or colored juice when wounded; volva and annulus none; spores globose or broadly elliptical, white or yellowish.

The peculiar character of this genus, and one which gives to it its name, is the milky juice which pervades the flesh and especially the lamellæ of the species. It is generally white, like milk, but in some species it quickly changes color on exposure to the air, and in a few it is always colored. In some instances it is colorless or watery, but such plants are regarded by Fries as degenerate or abnormal from growing in very wet places. In very old specimens, or in very dry weather, the milk is often more scant than usual, and it sometimes fails entirely. Its presence may generally be ascertained by cutting or breaking the pileus or the lamellæ. It is better to seek it in the latter, inasmuch as it generally flows more freely from them, especially in small species, than from the pileus and stem. In some species of Mycena a similar milky or colored juice exists, especially in the stem, but these are abundantly distinct from the Lactarii by their small size, campanulate pileus and slender, hollow, cartilaginous stem. In the genus Russula the size, shape and texture of the species is the same as in Lactarius, but the milky juice is wanting, though the acrid taste may be present, so that the presence of the milk and the fleshy stem is sufficient to distinguish these plants from all other Agaricini.

The pileus is fleshy in all the species, but in some it is thin. Even when thick and compact its texture is brittle, so that it is easily broken. It is variegated in many species by more highly-colored concentric bands or zones, a character always wanting in the allied species of Russula. The margin of the pileus is at first inflexed or involute, and the pileus itself more or less convex, but with advancing age the margin becomes spreading or elevated, and then the pileus, being depressed in the center, presents an obconic or funnel shape. Sometimes the pileus is convex, but umbilicate or centrally depressed with its earliest appearance, in other instances it is broadly convex or nearly plane, and furnished with a small umbo or papilla.

The lamellæ are at first adnate, but by the change in the shape of the pileus, which comes from its expansion and the elevation of the margin, they become more or less decurrent. It is not uncommon to find them branched or forked, especially near the inner extremity. In color they are generally white or whitish, but this is often varied by yellowish or reddish tints as they become mature. They often change color where cut or bruised, even when the milk remains unchangeable. In some species they become pruinose or dusted by the spores when old, in others they remain naked.

The stem in many species is short and comparatively thick, in others its length equals or exceeds the diameter of the pileus. It may be equal in diameter throughout its entire length, or become gradually narrower either toward the apex or toward the base. In some species it is always solid or merely becomes spongy within when old, in others it may be either spongy within or hollow, and that too in different individuals of the same species. When it is stuffed in the young plant it is likely to be hollow in the old. In many of the species individuals sometimes occur in which it is eccentric.

The spores are globose or broadly elliptical, and more or less rough or echinulate, and they vary but little in size in the different species. Still by their slight variations in size and color they sometimes afford good specific characters, and should by no means be neglected in the study of the species.

The taste of the milk and flesh in many species is very acrid, or hot and biting like that of Cayenne pepper; in others it is mild or but tardily and slightly acrid. This character is of great utility in distinguishing the species, and it is necessary to observe it by actually tasting, but not swallowing the milk or flesh, if we would satisfactorily identify our specimens.

Several of the species are edible, others are affirmed by authors to be poisonous. In some instances authors do not agree in respect to the quality of the species, for while one affirms, for example, that *L. insulsus* and *L. piperatus* are edible, another declares them to be poisonous. It is most prudent to avoid the use of such acrid species, for although their acridity is dispelled or destroyed by cooking, they are said by Gillet to be indigestible, and only acceptable to the strongest stomachs.

Most of the Lactarii grow on the ground, a few on decaying wood. They are found in deep woods and swamps and in grassy grounds and open places. They occur in Summer and Autumn, and are most abundant in warm, showery weather. The species have been arranged by Fries in groups, depending partly on the color and quality of the milk and partly on the naked or pruinose character of the lamellæ. This latter character does not appear to me to be sufficiently constant and obvious to be satisfactory. I have, therefore, made the color of the milk the only basis of the primary grouping of our species.

Synopsis of the Species.

Milk at first bright-colored, unchangeable................ 1
Milk at first white, changing color on exposure to the air...... 2
Milk white or whitish, unchangeable...................... 7
1 Young lamellæ and milk indigo-blue.....................Indigo.
1 Young lamellæ and milk dark-red...................subpurpureus.
1 Young lamellæ and milk orange-red.................. deliciosus.
1 Young lamellæ and milk saffron-yellow ....Chelidonium.
2 Milk becoming pinkish-red............................ 3
2 Milk becoming yellow............................... 4
2 Milk becoming lilac-color ....uvidus.
3 Pileus dingy-gray or buff-gray (partly)...............fuliginosus.
3 Pileus dingy-brown (partly) ....lignyotus.
4 Margin of the mature pileus glabrous.................. 5
4 Margin of the mature pileus tomentose-hairy............ 6
5 Pileus distinctly spotted, taste acrid..... ....chrysorheus.
5 Pileus not distinctly spotted, taste tardily acrid.........theiogalus.
6 Stem spotted .... scrobiculatus.
6 Stem not spotted.............................cilicioides.
7 Pileus viscid when moist 8
7 Pileus not viscid 13
8 Margin of the pileus distinctly tomentose-hairy......torminosus.
8 Margin of the pileus glabrous or nearly so.............. 9
9 Pileus greenish-brown or yellowish-brown, tinged with green..sordidus.
9 Pileus some other color, glabrous and viscid................ 10
10 Pileus some shade of red or yellow.................... .. 11
10 Pileus some other color............................... 12

11 Pileus reddish, generally zoneless......................hysginus.
11 Pileus ochraceous, zoneless...............................affinis.
11 Pileus yellow or yellowish-white, zonate.................insulsus.
  12 Stem paler than the pileus.........................trivialis.
  12 Stem colored like the pileus.......................cinereus.
13 Pileus minutely tomentose,pubescent or squamulose.......... 14
13 Pileus glabrous or merely pruinose........................ 21
  14 Pileus rugose-reticulated, velvety-pubescent.........corrugis.
  14 Pileus not rugose-reticulated........................... 15
15 Pileus some shade of gray or brown........................ 16
15 Pileus some shade of red or yellow........................ 18
15 Pileus white or whitish................................... 20
  16 Plant inodorous... 17
  16 Plant odorous....................................glyciosmus.
17 Pileus about one inch broad, becoming paler with age......griseus.
17 Pileus more than one inch broad, not expallent (partly)..plumbeus.
  18 Lamellæ distant (partly)......................hygrophoroides.
  18 Lamellæ close... 19
19 Pileus less than two inches broad, milk white.............alpinus.
19 Pileus two inches or more broad, milk watery (or white)......helvus.
  20 Surface of the pileus persistently velvety-tomentose..vellereus.
  20 Margin of the pileus cottony-tomentose when young (partly) deceptivus.
21 Pileus white or whitish................................... 22
21 Pileus some other color................................... 24
  22 Lamellæ distant or subdistant........................... 23
  22 Lamellæ crowded, dichotomous.....................piperatus.
23 Stem more than four lines thick, young pileus umbilicate (partly) deceptivus.
23 Stem not more than four lines thick, pileus never umbilicate..albidus.
  24 Pileus some shade of gray or brown...................... 25
  24 Pileus some shade of red or yellow...................... 31
25 Wounds of the lamellæ becoming pinkish-red................ 26
25 Wounds of the lamellæ not becoming pinkish-red............ 27
  26 Pileus dingy-gray or buff-gray (partly)............fuliginosus.
  26 Pileus dingy-brown (partly)........................lignyotus.
27 Wounds of the lamellæ becoming sordid-greenish............ 28
27 Wounds of the lamellæ not becoming sordid-greenish........ 29
  28 Plant growing on the ground.............................varius.
  28 Plant growing on decaying wood..........................parvus.
29 Taste mild...Gerardii.
29 Taste acrid... 30
  30 Pileus dry, zoneless (partly)......................plumbeus.
  30 Pileus moist, generally zonate.....................pyrogalus.
31 Lamellæ distant (partly)........................hygrophoroides.
31 Lamellæ close or subdistant............................... 32
  32 Taste acrid... 33
  32 Taste mild or slightly acrid............................ 34
33 Pileus bay-red, flesh pinkish...............................rufus.
33 Pileus yellowish-red, flesh white.......................platyphyllus.

34 Stem more than four lines thick........................volemus.
34 Stem less than four lines thick........................ 35
35 Plant odorous........................camphoratus.
35 Plant inodorous........................ 36
36 Pileus some shade of red, not becoming paler with age ..subdulcis.
36 Pileus brown or brownish, becoming paler with age...paludinellus.

*Milk at first bright-colored, unchangeable.**

This group corresponds to the tribe DAPETES of Fries. In Europe there are but two species belonging to it; in our State there are four, one of which, *L. deliciosus*, is common to this country and Europe. There is much similarity in our species, their most obvious differences being in color. The pileus in all is glabrous, slightly viscid when moist, more or less zonate when young and moist, but becoming paler and less clearly zonate with age. The stem is hollow, at least when old, and often adorned with spots of the same color as the milk. The color of the milk pervades the whole plant, but it is less bright and clear except in the spots and the young lamellæ. Bruises or wounds of the lamellæ are apt to become greenish, and old plants are often stained with this hue. The spores in all are yellowish, and the taste is mild or slowly and moderately acrid. Probably all are edible, but only *L. deliciosus* has been tested.

Lactarius Indigo, *Schw.*

Blue Lactarius.

Pileus at first umbilicate with the margin involute, then depressed or infundibuliform, *indigo-blue with a silvery-gray lustre*, zonate, especially on the margin, sometimes spotted, becoming paler and less distinctly zonate with age or in drying; lamellæ close, *indigo-blue*, becoming yellowish and sometimes greenish with age; stem short, nearly equal, hollow, often spotted with blue, colored like the pileus; spores subglobose, .0003 to .00035 in. long; milk *dark blue*.

Pileus 2 to 5 inches broad, stem 1 to 2 inches long, 6 to 10 lines thick.

Dry places, especially under or near pine trees. Not rare but seldom abundant. July to September.

Lactarius subpurpureus, *Peck.*

Purplish Lactarius.

Pileus at first convex, then nearly plane or subinfundibuliform, more or less spotted and zonate when young and moist. *dark-red with a grayish lustre*; lamellæ close, *dark-red*, becoming less clear and sometimes greenish-stained with age; stem equal or slightly tapering upward, soon hollow, often spotted with red, colored like the pileus, sometimes hairy at the base; spores subglobose, .00035 to .0004 in., milk *dark-red*.

Pileus 2 to 3 in. broad, stem 1.5 to 3 in. long, 3 to 5 lines thick.

Damp or mossy ground in woods and swamps. July and August.

At once known by the peculiar dark-red or purplish hue of the milk, which color also appears in the spots of the stem and in a more subdued tone in the whole plant. The color of the pileus lamellæ and stem is modified by grayish and yellowish hues. In age and dryness the zones are less clear, and dried specimens can scarcely be distinguished from *L. deliciosus.*

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* Badham says that the milk of *L. deliciosus* changes to a green color, but I have not observed such a change.

Lactarius deliciosus, *Fr.*

Delicious Lactarius.

Agaricus deliciosus L.

Pileus at first convex and subumbilicate, then nearly plane or subinfundibuliform, *yellowish-orange or grayish-orange* varied by brighter spots and zones, fading to grayish-yellow when old or dry; lamellæ close, *orange-colored* with paler reflections, less clear and often greenish-stained with age; stem nearly equal, stuffed or hollow, often spotted, colored like the pileus, sometimes hairy at the base; spores subglobose, .0003 to .0004 in.; milk *orange-colored.*

Pileus 2 to 5 in. broad, stem 2 to 4 in long, 4 to 8 lines thick.

Woods and open places, but especially in mossy swamps. Common. July to September. Edible.

This is the most common species of its group. It grows both in wet and in dry places, and in acerose, frondose or mixed woods. It has an excellent reputation as an edible fungus. Badham says it is one of the best of fungi and that its flesh is firm, juicy, sapid and nutritious. One writer pronounces it the most delicious mushroom known. The best method of cooking is said to be, to bake three-fourths of an hour in a close covered dish, having seasoned it with pepper, salt and butter.

Badham states that the milk turns green on exposure to the air. Wounds of the flesh and lamellæ often do, but I have not observed this change in the color of the milk.

Lactarius Chelidonium, *Peck.*

Celandine Lactarius.

Pileus at first convex, then nearly plane and umbilicate or centrally depressed, *grayish-yellow or tawny*, at length varied with bluish and greenish stains, often with a few narrow zones on the margin, lamellæ *narrow*, close, sometimes forked, anastomosing or wavy at the base, *grayish-yellow;* stem short, subequal, hollow, colored like the pileus; spores globose, .0003 in.; milk sparse, *saffron-yellow;* taste mild.

Pileus 2 to 3 in. broad, stem 1 to 1.5 in. long, 4 to 6 lines thick.

Sandy soil, under or near pine trees. Saratoga and Bethlehem.

The milk of this species resembles in color the juice of celandine, *Chelidonium majus*. It is paler than that of *L. deliciosus.* By this character and by the dull color of the pileus, the narrow lamellæ, short stem and its fondness for dry situations, it may be separated from the other species. Wounds of the flesh are at first stained with the color of the milk, then with blue, finally with green. A saffron color is sometimes attributed to the milk of *L. deliciosus*, which may indicate that this species has been confused with that, or that the relationship of the two plants is a closer one than we have assigned to them.

Milk at first white, changing color on exposure to the air.

In this group, wounds of the lamellæ and flesh generally assume the changed color of the milk after a brief exposure to the air.

Lactarius uvidus, *Fr.*

Moist Lactarius.

Pileus at first convex, then nearly plane or centrally depressed, *glabrous, viscid*, whitish, grayish-brown or livid-brown, generally with a slight tinge of pink, sometimes obscurely zonate or marked with darker spots, either with or without a small umbo; lamellæ rather narrow, thin, close, white or yellowish, becoming *lilac where cut or bruised* ; stem equal or slightly tapering upward, stuffed or hollow, glabrous, viscid, whitish or pallid ; spores globose or broadly elliptical, *yellowish*, 00035 to .00045 in.; milk white, *changing to lilac*, taste acrid.

Var. *magnus*. Plant large, pileus obscurely zonate or marked with darker spots more or less concentrically arranged.

Pileus 1 to 2 in. broad, stem 1.5 to 3 in. long, 3 to 6 lines thick.

Wet mossy places in woods and swamps. Adirondack mountains and Sandlake. July and August.

This species is not very common. It is readily recognized by the lilac color assumed by the milk and the wounds of the flesh and lamellæ. The variety occurs in Vermont where it was observed by Mr. A P. Morgan.

Lactarius chrysorheus, *Fr.*

Yellow-milk Lactarius.

Agaricus zonarius, Bolt.

Pileus convex, umbilicate or centrally depressed, becoming infundibuliform, glabrous, *yellowish*, sometimes tinged with flesh-color, *adorned with bright-colored zones and spots*, the margin at first involute and pruinose-tomentose· lamellæ thin, close, adnate or decurrent, yellowish, some of them forked; stem equal, glabrous, hollow, white or colored like the pileus, sometimes spotted ; spores subglobose, .0003 to .00035 in.; milk white, *becoming yellow*, taste acrid.

Pileus 1 to 3 in. broad, stem 8 to 15 lines long, 3 to 5 lines thick.

Thin woods or open places. Bethlehem and Sandlake. July and August. Not common.

Fries describes this species as having a dry pileus, but in our specimens it appeared to be slightly viscid when moist. The milk in the European plant is said to change color quickly, in ours the change takes place slowly. The spots of the pileus are usually small and numerous and sometimes concentrically arranged They, as well as the zones, have a golden-yellow or pale-orange hue. They, together with the color of the pileus, distinguish this species from the next. and the change in the color of the milk separates it from *L. insulsus*. The plant described in the Twenty-third Report under this name belongs to the next species.

Lactarius theiogalus, *Fr.*

Sulphur-milk Lactarius.

Agaricus theiogalus, Bull.

Pileus fleshy, thin, convex, then depressed, even, *glabrous*, viscid, *tawny-reddish ;* lamellæ adnate or decurrent, close, pallid or reddish :

stem stuffed or hollow, even, colored like the pileus; spores *yellowish, inclining to pale flesh-color,* subglobose, .0003 to .00035 in.; milk white, *changing to sulphur-yellow,* taste tardily acrid, bitterish.

Pileus 2 to 5 in. broad, stem 1 to 3 in. long, 4 to 10 lines thick.

Woods and groves. Common. July to October.

Our plant does not fully accord with the description of the species as given by Fries. The pileus is moderately thick and compact, varying from convex or nearly plane and umbilicate to depressed or infundibuliform, slightly viscid when moist, zoneless or obscurely zonate, varying in color from pale grayish-red to tawny-red or brick-red, there being a mixture of gray yellow and red not easily defined. Gillet describes the pileus as "tawny-red, clear brick-red, bistre-red or orange-yellow diversely shaded." It somewhat resembles *L. torminosus* in color, but the glabrous margin and changeable milk distinguish it. The surface of the pileus has a minutely uneven or unpolished appearance, but it is smooth to the touch. The lamellæ are sometimes forked near the stem, whitish tinged with creamy-yellow or flesh color, and they often become stained with reddish-brown when old or bruised. The stem is generally paler than the pileus. It is commonly hollow, though sometimes stuffed or spongy within. Rarely it is spotted or stained with reddish-brown. When the flesh is cut or broken it soon assumes the pale-yellow color of the exposed milk. The taste is tardily or moderately acrid, or somewhat woody and bitterish. Its less acrid taste, unspotted and more reddish pileus, distinguish it from the preceding species. According to Gillet it is pronounced edible by some authors, poisonous by others. Cordier says that the pileus is dry, that the stem is almost always stuffed, and that it passes for poisonous, but that Letellier has eaten it more than once without inconvenience.

Lactarius resimus, *Fr.*

Recurved Lactarius.

Pileus convex and umbilicate, then infundibuliform, even, glabrous, viscid, zoneless, *whitish or pallid,* the margin at first *involute, white-tomentose,* at length spreading, naked; lamellæ decurrent, whitish; stem even or obsoletely spotted, villose, hollow, thick; milk *quickly changing to sulphur-yellow,* taste acrid

Var. *regalis.* (*L. regalis,* Peck.) Pileus yellowish-white, the margin glabrous; stem glabrous; spores globose, .0003 in.

Pileus 4 to 6 in. broad, stem 2 to 3 in long, 8 to 12 lines thick.

Woods. Croghan. September. Rare.

Our plant, which has been observed but once, has the margin of the pileus and the stem glabrous, but it can scarcely be more than a variety of the species, and as such we have subjoined it.

Lactarius scrobiculatus, *Fr.*

Spotted-stemmed Lactarius.

Agaricus scrobiculatus, Scop. *Agaricus theiogalus,* A. & S.

Pileus convex, then nearly plane or centrally depressed, viscid when moist, zoneless or slightly zonate, *reddish-yellow or subochraceous,* the margin at first involute, then spreading, *tomentose hairy;* lamellæ thin, close, adnate or slightly decurrent, whitish or yellowish ; stem equal, stout, hollow, colored like the pileus, adorned by *suborbicular depressed spots of a brighter color ;* spores *white*, .0003 to .00035 in.; milk white, *changing to sulphur-yellow,* taste acrid.

Pileus 3 to 6 in. broad, stem 1.5 to 3 in. long, 6 to 12 lines thick.

Wet, mossy ground in woods. Caroga. July. Rare.

This Lactarius is similar to the preceding in size and shape, and like that, it sometimes has the margin naked when old, but it is distinguished by its distinctly-spotted stem and more highly-colored pileus. Its color approaches that of *L. theiogalus*, but its generally hairy margin, together with its spotted stem and more acrid taste, will distinguish it from that species. It is not deemed edible.

Lactarius cilicioides, *Fr.*

Tomentose Lactarius.

Agaricus tomentosus, Otto. *Agaricus crinitus*, Schæff.

Pileus broadly convex or nearly plane, umbilicate or centrally depressed, occasionally subinfundibuliform, soft, *covered with long matted hairs or tomentum*, the center sometimes becoming naked with age, *zoneless*, viscid when moist, white reddish-buff or dingy-incarnate ; lamellæ rather narrow, thin, close, adnate or slightly decurrent, some of them forked, white, or tinged with yellow or incarnate ; stem short, equal or tapering downward, pruinose, stuffed or hollow, *not spotted*, white or whitish ; spores *white*, .00025 to .0003 in.; milk white, sparse, slowly changing to pale yellow, taste acrid.

Var. *albus.* Pileus at first white, flesh white, stem short, milk very sparse or almost none.

Pileus 1.5 to 4 in. broad, stem .5 to 1.5 in. long, 3 to 6 lines thick.

Woods and open places, especially under or near pine trees. Forestburgh, Karner, West Albany and Greig. September and October.

The tomentose Lactarius is distinguished from all our other species by its conspicuously woolly pileus. It is this character that gives name to the plant. The hairs or fibrils are long and intricately matted, and so viscid in wet weather that fragments of leaves, sticks and dirt are often found adhering to them. The variety, which is found especially on sandy soil near pine trees, is white when young, but with age it is apt to become stained with a dirty-yellow or rusty-yellow hue, especially in the center. The milk is very sparse and sometimes wanting. The stem is so short that the pileus appears to rest on the ground. In the form which grows in woods the stem is longer, and the pileus approaches the next species in color. Fries describes the stem as two to three inches long and one inch thick, but I have seen no specimens with stems so large. The plant occurs in autumn, and sometimes several successive crops appear in the same locality in one season. It is sometimes subcæspitose.

Milk white or whitish, unchangeable.

* Pileus viscid when moist.

Lactarius torminosus, *Fr*.

Colic Lactarius. Woolly Lactarius.

Agaricus torminosus, Schæff. *A. necator*, Bull. *A. piperatus*, L. *A. barbatus*, Retz.

Pileus convex, then depressed, viscid when young or moist, yellowish-red or pale-ochraceous tinged with red or flesh color, often varied with zones or spots, the at first involute *margin persistently tomentose-hairy ;* lamellæ thin, close, narrow, whitish, often tinged with yellow or flesh color ; stem equal or slightly tapering downward, hollow, sometimes spotted, whitish ; spores subglobose or broadly elliptical, .00035 to .0004 in., milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1.5 to 3 in. long, 4 to 8 lines thick.

Woods. Adirondack mountains and Sandlake. August.

This species differs from all the preceding by its unchangeable milk, and from all the following by the coarse tomentum or hairs of the margin of the pileus. Badham says that it is acrid and poisonous, and Gillet declares it to be deleterious and even dangerous, and that in the raw state it is a very strong drastic purgative. On the other hand Cordier states that almost all authors agree in saying that it is eaten with impunity, and that Letellier has eaten it more than once without inconvenience.

Lactarius sordidus, *Peck.*

Pileus thick, firm, convex and centrally depressed, then nearly plane or subinfundibuliform, *subglabrous*, slightly viscid when moist, *soon dry, pale yellowish-brown, tinged with sordid green*, often darker in the center ; lamellæ narrow, close, white or yellowish ; stem short, firm, equal or slightly tapering upward, hollow, colored like the pileus, generally spotted ; spores .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 4 to 8 lines thick.

Woods and open places, especially under spruce and balsam trees. Adirondack mountains and Sandlake. August and September.

This species appears to resemble *L. turpis* Fr. in color, but that species differs, according to the description of Fries, in having the margin of the pileus at first villose or tomentose, the stem stuffed, attenuated downward, not spotted, and the pileus covered with a tenacious gluten. Like it, our plant has a sordid, forbidding appearance. It sometimes appears to be adorned with a few obscure fibrils or to be slightly scabrous or hairy.

Lactarius trivialis, *Fr*.

Common Lactarius.

Pileus convex, then nearly plane, umbilicate or centrally depressed, glabrous, viscid, sometimes zonate, leaden-gray, livid-cinereous or pale brown, often with a pink or lilac tint, the thin inflexed margin at first with a grayish pruinosity ; lamellæ rather narrow, close, thin, adnate, sometimes forked, whitish, becoming pallid or creamy-yellow, with *dingy-greenish stains where wounded ;* stem equal or slightly tapering upward, long or short, glabrous, rarely spotted, hollow, whitish, often tinged with yellow or gray, *paler than the pileus ;* spores *yellowish*, .0003 to .0004 in.; milk *whitish or pale cream color*, taste acrid.

Var. *maculatus* Pileus zonate or spotted and zonate, stem sometimes spotted.

Var. *gracilis*. Pileus small, 1 to 2 in. broad, stem equal to or longer than the diameter of the pileus, often tapering upward

Pileus 1 to 6 in. broad, stem 1 to 5 in. long, 3 to 10 lines thick.

Woods and open places Sandlake, Albany and Adirondack mountains. July to September.

A variable species. Some forms of our plant exhibit the characters attributed to the European fungus, others do not; but these forms all run together in such a way as to leave scarcely a doubt of their specific unity. I have therefore merely distinguished two of these forms as varieties. In all the forms the pileus is sometimes zonate, and in one it is spotted, though Fries describes the pileus as "azonate" and the stem as "immaculate." In the variety *maculatus* a zonate pileus and spotted stem are sometimes united in the same plant. This form occurred in low woods in Gansevoort. The plants were large and the stem long. The variety *gracilis* was found in woods in Greig, and is so small and slender that it appears like a distinct species, yet exhibits the essential specific characters. The thin pellicle of the pileus is separable and the whitish flesh has a dingy or grayish hue immediately beneath it. The plant is sometimes cæspitose.

Lactarius hysginus, *Fr.*

Reddish Lactarius.

Agaricus vietus, Krombh.

Pileus rigid, at first convex, then nearly plane, umbilicate or slightly depressed, even, viscid, zoneless or rarely obscurely zonate, *reddish-incarnate, tan-color* or *brownish-red*, becoming paler with age, the thin margin inflexed; lamellæ close, adnate or subdecurrent, whitish, becoming yellowish or cream colored; stem equal, glabrous, stuffed or hollow, colored like the pileus, or a little paler, sometimes spotted; spores subglobose, *whitish on black paper, yellowish on white paper*, .00035 to .0004 in.; milk white, taste acrid.

Pileus 2 to 3 in. broad, stem 1 to 2 in. long, 4 to 8 lines thick.

Woods. Sandlake and Caroga. July and August. Not common.

The reddish hue of the pileus distinguishes this species from its allies. The gluten or viscidity of the pileus in our specimens was rather tenacious and persistent.

Lactarius affinis, *Peck.*

Related Lactarius.

Pileus convex and centrally depressed, glabrous, viscid, *zoneless, ochraceous-yellow*; lamellæ rather broad, subdistant, whitish or creamy-yellow, some of them forked; stem equal, glabrous, stuffed or hollow, colored like the pileus, often spotted; spores .00035 to .00045 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 6 to 12 lines thick.

Pastures and copses. Catskill mountains. October. Rare.

I have observed this species but once. Mr. Morgan has found a stout form of it in Vermont. In his specimens the stem is conspicuously spotted, in the New York specimens sparingly. The species is closely related to *L. insulsus*, but apparently distinct by its darker color, broader, looser lamellæ and zoneless pileus. It appears to be intermediate between that species and *L. hysginus.*

Lactarius insulsus, *Fr.*

Unsavory Lactarius.

Agaricus flexuosus, Secr.

Pileus convex and umbilicate, then infundibuliform, glabrous, viscid, *more or less zonate, yellowish*, the margin naked; lamellæ thin, close adnate or decurrent, some of them forked at the base, whitish or pallid; stem equal or slightly tapering downward, stuffed or hollow, whitish or yellowish, generally spotted; spores .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 4 to 6 lines thick.

Thin woods and open, grassy places. Greenbush and Sandlake. July and August.

Our plant has the pileus pale yellow or straw color, and sometimes nearly white, but European forms have been described as having it orange-yellow and brick-red. It is generally, though often obscurely, zonate. The zones are ordinarily more distinct near the margin, where they are occasionally very narrow and close. The milk in the Greenbush specimens had a thin, somewhat watery appearance. Authors differ in their estimate of its qualities, some affirming that it is edible, others that it is poisonous. It is classed as edible in the Curtis Catalogue, and Cordier says that it appears to be edible.

Lactarius cinereus, *Peck.*

Cinereous Lactarius.

Pileus thin, nearly plane and *umbilicate or subinfundibuliform, glabrous, viscid, pale gray or cinereous*, the disk sometimes darker colored; lamellæ narrow, close, white; stem equal or slightly tapering upward, stuffed, sometimes tomentose at the base, *colored like the pileus;* spores *white*, .00028 to .0003 in.; milk white, taste acrid.

Pileus 1 to 2 in. broad, stem 1 to 3 in. long, 3 to 4 lines thick.

Woods. Sandlake and Greig. August and September.

The species is evidently closely allied to *L. vietus* Fr., but I have never seen the pileus umbonate or expallent, nor the milk become gray, characters attributed to that species. In our plant the viscid pellicle is separable. In shape and size it resembles *L. trivialis* v. *gracilis*, but its paler usually umbilicate pileus, concolorous stem and white spores separate it. Mr. Morgan finds, in Vermont, a somewhat larger form with the pileus sometimes zonate.

** Pileus not viscid.

† *Pileus minutely tomentose or squamulose.*

Lactarius griseus, *Peck.*

Gray Lactarius.

Pileus thin, nearly plane, broadly umbilicate or centrally depressed, sometimes infundibuliform, generally with a small umbo or papilla, *minutely squamulose tomentose*, gray or brownish-gray, becoming paler with age; lamellæ thin, close, adnate or slightly decurrent, whitish or yellowish; stem slender, equal or slightly tapering upward, rather fragile, stuffed or hollow, generally villose or tomentose at the base, paler than or colored like the pileus; spores .0003 to .00035 in.; milk white, taste subacrid.

Pileus 6 to 18 lines broad, stem 1 to 2 in long, 1 to 3 lines thick.

Woods and swamps on much decayed wood and mossy ground. Common. July to September.

The relationship of this species is with *L. mammosus* Fr., from which it differs in its lamellæ, which do not become ferruginous, and in its stem which is not pubescent, though it generally has long coarse tomentose hairs at its base. Its habitat also is peculiar, being much decayed mossy prostrate trunks or damp mossy vegetable mold in woods and swamps. It bears some resemblance to *L. cinereus* in form and color, but it is generally smaller, and easily distinguished by its dry tomentulose pileus.

Lactarius glyciosmus,

Fragrant Lactarius. Scented Lactarius.

Pileus thin, convex nearly plane or depressed, often with a small umbo or papilla, *minutely squamulose*, cinereous, grayish-brown or smoky-brown, sometimes tinged with pink, the margin even or slightly and distinctly striate; lamellæ narrow, close, adnate or decurrent, whitish or yellowish; stem equal, glabrous or obsoletely pubescent, stuffed, rarely hollow, whitish or colored like the pileus; spores .0003 to .00035 in.; milk white, taste acrid and unpleasant, sometimes bitterish, odor *aromatic*.

Pileus 6 to 18 lines broad, stem 6 to 18 lines long, 1 to 3 lines thick.

Woods and open places on the ground and on decaying wood Adirondack mountains, West Albany and Karner. September and October.

The distinctive characters of the species are its small size, squamulose pileus and agreeable odor. This is described by European authors as spirituous or like that of alcohol, but to me it resembles rather that of dry melilot and is not much unlike that of *L. camphoratus*. The American plant, so far as observed, does not have the red hues ascribed to the European.

Lactarius alpinus, *Peck*.

Alpine Lactarius.

Pileus thin, convex or nearly plane, sometimes centrally depressed, occasionally with a small umbo or papilla, tomentose or squamulose, *tawny-ochraceous;* lamellæ close, adnate or decurrent, yellowish; stem equal or slightly tapering upward, glabrous, solid or stuffed, paler than or colored like the pileus; spores .0003 to .00035 in.; milk *white*, taste acrid.

Pileus 8 to 18 lines broad, stem 12 to 18 lines long, 2 to 3 lines thick

Summit of Haystack mountain and Karner. August. Rare.

Apparently allied to *L. helvus* Fr, but so much smaller that I can scarcely think it the same species and have for the present kept it distinct. The plants resemble *L. subdulcis* in size and somewhat in color, but differ in their squamulose pileus. The specific name proves to be inappropriate, as the species has been found in a much lower region than that of its original discovery.

Lactarius helvus, *Fr.*

Pale-red Lactarius.

Pileus fleshy, *fragile*, convex, then plane or depressed, subumbonate, dry, *silky or floccose-squamulose* and rivulose, *pale-testaceous*, becoming paler; lamellæ decurrent, thin, close, whitish-ochraceous; stem stuffed or hollow, *pruinose-pubescent;* milk sparse, subacrid, white.

Var. *aquifluus*. *L. aquifluus* Peck. Milk sparse, *watery*, taste mild or subacrid, spores .0003 to .00035 in.; odor weak in the fresh plant, more decided in the dried specimens, aromatic and agreeable.

Pileus 2 to 6 in. broad, stem 3 to 6 in. long, 4 to 10 lines thick.

Mossy ground in swamps and marshes. Adirondack mountains, Sandlake and Karner. July and August.

Our specimens agree so closely with the description of *L. helvus*, as given by Fries, and of which a translation is here given, that we have referred them to that species, distinguishing them merely as a variety on account of the watery milk. Fries regards such a milk as belonging to a degenerate or abnormal state of the species, and the result of too much moisture. But unless *L. alpinus*, shall prove to be a dwarf form of *L. helvus*, only this form of the species has been detected within our limits and indeed in this country. It scarcely seems probable that a species would occur constantly and repeatedly, in various widely separated localities, in a degenerate condition only. It would seem probable that occasionally, in a dry time or in a more dry locality, it would revert to its normal condition. But this has not yet been observed to happen in our plant, therefore we have preferred to consider it a variety. The milk sometimes presents a slightly turbid appearance, less clear than water. The pileus becomes quite fragile when old, and the thin margin is then spreading and sometimes flexuous. The color is a grayish-red or pale tawny-red. The stem is nearly equal, but in young plants it is often narrowed toward the apex. It is glabrous or pruinose and soon hollow, often a little paler than the pileus and slightly striate at the apex from the decurrent lamellæ. The flesh is tinged with pink or a pale pinkish-gray. The plant is sometimes cæspitose.

Lactarius vellerius, *Fr.*

Fleecy Lactarius.

Agaricus Listeri Sow. *A. piperatus* Poll.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or subinfundibuliform, the *whole surface minutely velvety-tomentose, soft to the touch*, white or whitish, the margin at first involute, then reflexed; lamellæ *distant or subdistant*, adnate or decurrent, sometimes forked, whitish becoming yellowish or cream-colored; stem firm, solid, equal or tapering downward, *pruinose-pubescent*, white; spores white, *nearly smooth*, .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 5 in. broad, stem .5 to 2 in. long, 6 to 16 lines thick.

Woods and open places. Common. July to September.

The soft downy tomentum which is characteristic of this species and which covers the whole pileus gives it a pruinose appearance when viewed from a little distance. The stem is generally short and is sometimes broader than long. The lamellæ vary in width from two to four lines and are generally about equal in width to the thickness of the pileus. They become stained where bruised. The milk, which is sometimes quite abundant in wet weather, exudes from wounds and dries into cream-colored gummy granules. The taste is very acrid. Cordier states that it is poisonous according to some authors, edible according to Leveille.

Lactarius deceptivus, *Peck.*

Deceptive Lactarius.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or subinfundibuliform, *obsoletely tomentose or glabrous* except on the margin, white or whitish, often varied with yellowish or sordid stains, the margin at first involute and *clothed with a dense, soft or cottony tomentum,* then spreading or elevated and more or less fibrillose; lamellæ rather broad, distant or subdistant, adnate or decurrent, some of them forked, whitish, becoming cream colored; stem equal or narrowed downward, solid, pruinose-pubescent, white; spores white, .00035 to .0005 in.; milk white, taste acrid.

Pileus 3 to 5 in. broad, stem 1 to 3 in. long, 8 to 18 lines thick.

Woods and open places, especially under hemlock trees. Common. July to September.

This plant appears to have been confused with *L. vellereus,* which it closely resembles, but from which it appears to me to be quite distinct, both in the character of the tomentum of the pileus and in its decidedly larger and rougher spores. The young pileus is clothed with a thin, silky tomentum, which, on the involute margin, is quite thick, but very soft and cottony, and sometimes striated with parallel impressions, produced by previous pressure against the edges of the lamellæ. In the mature plant the pileus appears nearly or quite glabrous, or is merely shaggy fibrillose on the margin. Sometimes the cuticle seems to be slightly rimose, and the surface then has a kind of scaly appearance. The lamellæ are as broad and distant as in *L. vellereus,* but the stem is generally a little longer in the present species than it is in that. The glabrous form of this species was referred to *L. piperatus* in the Twenty-third Report. An experiment of its edible qualities was made without any evil consequences. The acridity was destroyed by cooking.

†† *Pileus glabrous or merely pruinose or pruinose-pubescent, not squamulose.*

Lactarius piperatus, *Fr.*

Peppery Lactarius.

Agaricus piperatus, Scop. *A. acris,* Bull. *A. Listeri,* Krombh.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or infundibuliform, even, *glabrous,* white; lamellæ *narrow, crowded, dichotomous,* adnate or decurrent, white or cream colored; stem equal or slightly tapering downward, solid, glabrous, white; spores white, nearly smooth, .00025 to .0003 in.; milk white, abundant, taste very acrid.

Pileus 1.5 to 4 in. broad, stem .5 to 2 in. long, 5 to 10 lines thick.

Thin woods, pastures and grassy places. Common. July to Sepcember.

The glabrous or sometimes merely pruinose pileus, the crowded and frequently forked narrow lamellæ separate this species from the other white ones. The lamellæ are one to two lines broad, their width being less than the thickness of the flesh of the pileus. The stem is either very short or quite long, according to the place of growth, it being longer when growing in woods among fallen leaves than when growing in open grassy places. In the summer of 1883 this and the two preceding species were abundant in the town of Sandlake, and all grew in the same locality. By a little practice they were readily distinguishable, even without a close inspection.

Most authors agree in attributing edible qualities to this species, notwithstanding its intense acridity. Badham says that he has frequently eaten it, and that according to Berkeley it is preserved for winter use by pickling in salt and vinegar. Cordier says that it is an agreeable aliment and is eaten in many countries, and that cows eat it with avidity, but that it renders their milk and butter nauseous. Fries says it is edible, and it is so classed in Curtis' Catalogue. Gillet states that although it does not constitute an agreeable article of food, it is eaten in some parts of France, and that the Russians make frequent use of it.

Lactarius albidus, *Peck.*

White Lactarius.

Pileus *thin*, plane or slightly depressed, glabrous, dry, white; lamellæ *subdistant*, adnate or slightly decurrent, white, the *interspaces venose;* stem equal, solid, glabrous, white; spores white, .0003 to .00035 in.; milk white, taste acrid.

Pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods. Karner. September. Very rare.

This Lactarius has been observed but once, and then but few specimens were seen, yet it appears to be distinct from all our other white species in its thin pileus, subdistant lamellæ, venose interspaces and rather slender stem. Except in color, it has some similarity to the next species.

Lactarius varius, *n. sp.*

Variable Lactarius.

Pileus thin, convex or nearly plane, umbilicate or centrally depressed, sometimes with a minute umbo or papilla, *glabrous*, even or obscurely roughened, submoist, zoneless or rarely narrowly zonate on the margin, *gray or brown, often tinged with lilac,* lamellæ close, adnate or subdecurrent, whitish or cream colored, becoming dingy-greenish where wounded; stem equal, elastic, glabrous, solid or spongy within, paler than or colored like the pileus; spores white, .0003 to .00035 in.; milk white, taste tardily acrid, *odor none,* flesh white.

Pileus 1 to 2.5 in. broad, stem 1 to 2.5 in. long, 2 to 4 lines thick.

Thin woods and moist places. West Albany and Karner. September.

A very variable species. The prevailing color of the pileus is gray or lead-gray, but it is often lilac-brown. Its surface has a moist and shining appearance, but it is sometimes seen under a lens to be roughened by minute pits or depressions, in which case it presents silvery or sparkling reflections as if micaceously atomate. It often grows with *L. glyciosmus* from which it is distinguished by its glabrous pileus and lack of odor. It also approaches *L. plumbeus*, but differs from it in its smaller size, paler color, moist appearance and larger spores. Wounds of the lamellæ assume a hue similar to that seen under similar circumstances in *L. trivialis*.

Lactarius parvus, *Peck.*

Small Lactarius.

Pileus nearly plane or depressed, *even*, glabrous, *zoneless*, reddish-brown or lilac-brown, *becoming paler with age*, lamellæ narrow, crowded, white or yellowish, becoming dingy-greenish where wounded; stem equal or slightly tapering upward, often curved, stuffed, whitish; spores globose, white, .0003 to .0004 in.; milk white, taste acrid.

Pileus 6 to 12 lines broad, stem 6 to 12 lines long, 1 to 2 thick.

Old stumps and prostrate trunks in woods. Sandlake, Osceola and Greig. August and September.

This small species is closely allied to *L. varius*, of which it might be considered a mere variety. It differs in being smaller, in having the pileus constantly even, zoneless, destitute of an umbo or central papilla and in growing paler with age. I have only found it growing on decaying wood. When growing on the sides of stumps and prostrate trunks, the stem is often curved and sometimes eccentric.

Lactarius plumbeus, *Fr.*

Lead-colored Lactarius.

Agaricus plumbeus, Bull.

"Pileus compact, convex, then infundibuliform, dry, unpolished *fuliginous or brownish-black;* lamellæ crowded, white or yellowish; stem solid, equal, thick; milk white, acrid, *unchangeable*," spores .00025 to .0003 in.

Pileus 2 to 5 in. broad, stem 1.5 to 3 in. long, 3 to 6 lines thick.

The specimens which I have referred to this species were found in the Catskill mountains several years ago, growing in hemlock woods, under spruce and balsam trees. I have not met with the species since. The pileus in the larger specimens had a minutely tomentose appearance, but in the dried specimens this has disappeared. They also varied in color from blackish-brown to pinkish-brown and grayish-brown, but they can scarcely be more than a mere form or variety of the species the description of which, as given by Fries, I have quoted. In the Handbook the pileus is described as dark fuliginous gray or brown, and Gillet describes it as black-brown, dark fuliginous or lead-color, and adds that the plant is poisonous and the milk very acrid and burning. Cordier says that the flesh is white and the taste bitter and disagreeable.

Lactarius pyrogalus, *Fr.*

Caustic Lactarius.

Agaricus pyrogalus, Bull. *A. rusticanus*, Scop.

Pileus broadly convex, plane or slightly depressed, sometimes umbilicate, glabrous, even, *submoist*, *generally zonate*, livid-cinereous, grayish-brown or lilac-brown; lamellæ thin, *distant or subdistant*, adnate or subdecurrent, *yellowish;* stem equal or slightly tapering downward, glabrous, stuffed or hollow, paler than or colored like the pileus; spores globose, *yellowish*, .0003 to .00035 in.; milk white, taste acrid.

Pileus 1.5 to 2.5 in. broad, stem 1 to 1.5 in. long, 2 to 4 lines thick.

Thin woods and open places. Sandlake, Greenbush and Karner. August to October.

The zonate pileus, distant lamellæ and yellowish spores separate this species from its allies. The milk is copious and very acrid and the species is regarded as poisonous. Cordier states that the milk is mild in young plants, acrid in mature ones.

Lactarius fuliginosus, *Fr.*

Dingy Lactarius.

Agaricus azonites, Bull. *A. plinthogalus*, Otto. *L. fumosus*, Pk.

Pileus firm becoming soft, convex plane or slightly depressed, even, *dry*, zoneless, *dingy-cinereous or buff-gray*, appearing as if covered with a dingy pruinosity, the margin sometimes wavy or lobed; lamellæ adnate or subdecurrent, subdistant, whitish, then yellowish, becoming *stained with pink-red or salmon color where wounded;* stem equal or slightly tapering downwards, firm, stuffed, colored like the pileus; spores globose, *yellowish*, .0003 to .0004 in.; milk white, taste tardily and sometimes slightly acrid.

Pileus 1 to 2.5 in. broad, stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods and open grassy places. Greenbush and Sandlake. July and August.

The pileus, in this species, has a peculiar dingy or smoky hue which is suggestive of the specific name. The color is a pale-cinereous or yellowish-gray compared by some authors to the color of coffee and milk. This and the yellowish color of the spores, the tardily acrid taste and the pinkish hue of the wounds of the lamellæ and flesh characterize the species. Both Fries and Gillet state that the milk, as well as wounds of the flesh, changes to a pinkish or saffron hue on exposure to the air. This would transfer the place of the species to our second group, for which we have made provision in the synoptical table. But we have failed to verify this character in our plant, and consequently it was formerly supposed to be distinct from the European, and was published under the name *Lactarius fumosus*. But inasmuch as the European plant has also been described as having white unchangeable milk, and since our plant agrees in every other respect with the description given by Fries, it is quite probable that the species may vary in this respect and we have therefore referred our plant to it. Cordier states that according to Barla and Reveil this species is poisonous.

Lactarius lignyotus, *Fr.*

Sooty Lactarius.

Pileus broadly convex plane or slightly depressed, dry, with or without a small umbo, generally rugose-wrinkled, *dark-brown, appearing subpulverulent or as if suffused with a dingy pruinosity*, the margin sometimes crenately lobed and distinctly plicate ; lamellæ moderately close or subdistant, adnate, white or yellowish, *slowly changing to pinkish-red or salmon color where wounded ;* stem equal or abruptly narrowed at the apex, even, glabrous, stuffed, colored like the pileus, sometimes plicate at the top ; spores globose, *yellowish*, .00035 to .00045 in.; milk white, taste mild or tardily and slightly acrid.

Var. *tenuipes.* Pileus about 1 inch broad, stem slender, 2 to 3 in. long and about two lines thick.

Pileus 1 to 4 in. broad, stem 1 to 3 in. long, 2 to 6 lines thick.

Wet or mossy ground in woods and swamps. Adirondack mountains and Sandlake. July and August. Not rare in hilly and mountainous districts.

The sooty Lactarius is closely related to the preceding species with which it was formly united by Fries as a variety, but from which it may be distinguished by its larger size. darker color and generally rugose-wrinkled pileus. Wounds of the flesh and lamellæ slowly change color as in that species, and, according to the description given by Fries, the milk also undergoes a similar change, but I have not been able to verify this in the American plant. According to the description of *L. subtomentosus*, B. & R., the milk in that plant changes from white to yellowish and the taste is acrid. In the Twenty-third Report our plant was erroneously referred to that species.

Lactarius Gerardii, *Peck.*

Gerard's Lactarius.

Pileus broadly convex plane or slightly depressed, dry, generally rugose-wrinkled, with or without a small umbo or papilla, *dingy-brown*, the thin spreading margin sometimes flexuous lobed or irregular ; lamellæ *distant*, adnate or decurrent, *white or whitish*, the interspaces generally uneven ; stem subequal, stuffed or hollow, colored like the pileus; spores globose, *white*, .00035 to .00045 in.; milk white, *unchangeable*, taste *mild.*

Pileus 1.5 to 4 in. broad, stem 1 to 2 in. long, 3 to 6 lines thick.

Woods and open places. Poughkeepsie. *W. R. Gerard.* Greenbush, Sandlake and Croghan. July to September.

This Lactarius closely resembles the sooty Lactarius in color, but differs from it in its more distant lamellæ, white spores and constantly mild taste. Wounds of the flesh and lamellæ do not become pinkish-red as in that plant. From the next species its darker color, hollow stem and more globose rougher spores separate it.

Lactarius hygrophoroides, *B. & C.*

Hygrophorus-like Lactarius. Distant-gilled Lactarius.

Lactarius distans, Pk.

Pileus firm, convex or nearly plane, umbilicate or slightly depressed, rarely infundibuliform, glabrous or sometimes with a minute velvety pubescence or tomentum, dry, sometimes rugose-wrinkled and often becoming rimose-areolate, *yellowish-tawny or brownish-orange;* lamellæ *distant*, adnate or subdecurrent, white or cream-color, the interspaces uneven or venose; stem short, equal or tapering downward, *solid*, glabrous or merely pruinose, colored like the pileus; spores subglobose or broadly elliptical, *nearly smooth*, .00035 to .00045 in.; milk white, taste mild.

Pileus 1 to 4 in. broad, stem .5 to 1 in. long, 4 to 8 lines thick.

Grassy ground and borders of woods. Albany, Greenbush and Sandlake. July and August.

This plant has almost exactly the color of *L. volemus*, but differs from it in its distant lamellæ, short stem, less copious milk and less globose spores. Its flesh is white, with a thickness about equal to the breadth of the lamellæ. It is probably edible, but has not yet been tested. The typical *L. hygrophoroides* is described as having the pileus yellowish-red and pulverulent, and the lamellæ luteous. It is also represented as a small plant; but our specimens, while not fully agreeing with this description, approach so closely to it in some of their forms that they doubtless belong to the same species. We have therefore extended the description so that it may include our plant. In wet weather the pileus sometimes becomes funnel-form by the elevation of the margin.

Lactarius volemus, *Fr.*

Orange Lactarius. Orange-brown Lactarius.

Agaricus testaceus, A. & S. *A. ruber*, Secr.

Pileus firm, convex nearly plane or centrally depressed, rarely infundibuliform, sometimes with a small umbo, generally even, *glabrous*, dry, *golden-tawny or brownish-orange*, sometimes darker in the center, often becoming rimose-areolate; lamellæ *close*, adnate or subdecurrent, white or yellowish, becoming sordid or brownish where bruised or wounded; stem subequal, variable in length, firm, solid, glabrous or merely pruinose, colored like the pileus, sometimes a little paler; spores *globose*, white, .00035 to .00045 in.; milk *copious*, white, taste acrid.

Var. *subrugosus*. Pileus rugose-reticulated on the margin.

Pileus 2 to 5 in. broad, stem 1 to 4 in. long, 4 to 10 lines thick.

Thin woods and open places. Common. July to September. Edible.

The color of the pileus is a peculiar mixture of red and yellow, sometimes shaded with brown. It is generally free from the attacks of insects, and this, with its beautiful and nearly uniform color, makes it an attractive species. It is nearly as celebrated as *L. deliciosus* for its edible qualities. Cordier says "it is one of the most agreeable fungi to eat." Its flesh is firm but brittle, white or yellowish. Its milk is very abundant and its taste mild or slightly astringent. In drying, the specimens sometimes emit a disagreeable odor. We have followed Fries and other continental mycologists in writing the specific name "volemus." Some English authors have it "volemum." The variety connects this species with the next.

Lactarius corrugis, *Peck.*

Corrugated Lactarius.

Pileus firm, convex, then nearly plane or centrally depressed, *rugose reticulated*, covered with a *velvety pruinosity or pubescence, dark* *reddish-brown or chestnut color*, fading with age to tawny-brown; lamellæ close, dark cream color or subcinnamon, *becoming paler* when old, sordid or brownish where bruised or wounded, stem equal, solid, glabrous or merely pruinose, paler than but similar in color to the pileus; spores subglobose, .0004 to .0005 in., milk copious, white, taste mild.

Pileus 3 to 5 in. broad, stem 3 to 5 in. long, 6 to 12 lines thick.

Thin woods. Sandlake, Gansevoort and Brewerton. August and September.

This curious Lactarius is related to *L. volemus*, from which it may be separated by its darker colors and its corrugated pileus. The flexuous reticulated rugæ present an appearance similar to that of the hymenium of a Merulius. The pileus is everywhere pruinose-pubescent and the lamellæ bear numerous spine-like or acicular cystidia or spicules, .0016 to .002 in. long. These are so numerous on and near the edges of the lamellæ that they give them a pubescent appearance.

Lactarius platyphyllus, *Peck.*

Broad-gilled Lactarius.

Pileus depressed or subinfundibuliform, glabrous, zoneless, *yellowish-incarnate or yellowish-red*, the decurved or spreading margin sometimes wavy or flexuous; lamellæ *broad*, subdistant, yellowish; stem equal, stout, *hollow*, paler than or colored like the pileus; spores subglobose or broadly elliptical, .00035 to .00045 in.; milk white, taste acrid.

Pileus 4 to 8 in. broad, stem 3 to 5 in. long, 6 to 12 lines thick. Woods. North Elba. August.

This large species is apparently very rare. It has been observed but once, and then in dry weather, so that it was not positively ascertained whether the pileus may not be viscid when moist. Its real position is, therefore, uncertain. The lamellæ are four or five lines broad and the flesh is white or whitish.

Lactarius rufus, *Fr.*

Red Lactarius.

Agaricus rufus, Scop.

Pileus convex and centrally depressed, then infundibuliform, generally with a small umbo, glabrous, sometimes slightly floccose or pubescent when young, especially on the margin, zoneless, *bay-red or brownish-red*, shining; lamellæ narrow or moderately broad, sometimes forked, close, subdecurrent, yellowish or reddish: stem nearly equal, firm, stuffed, paler than or colored like the pileus; spores white, .0003 to .0004 in.; milk white, taste very acrid.

Pileus 2 to 4 in. broad, stem 2 to 4 in. long, 3 to 5 lines thick.

Low woods and swamps. North Elba. August. Rare.

The red Lactarius is known by its rather large size, dark-red pileus and intensely acrid taste. It has been found but once in our State. The flesh is pinkish and the stem sometimes pruinose. It is designated by authors as very poisonous and extremely poisonous. Cordier even says that worms never attack it.

Lactarius camphoratus, *Fr.*

Camphor Lactarius.

Agaricus camphoratus, Bull.

Pileus thin, convex, then nearly plane or depressed, generally with a small umbo or papilla, glabrous, *bay-red or brownish-red*, sometimes zonate, the spreading margin occasionally wavy or flexuous; lamellæ narrow, thin, close, yellowish or dull reddish; stem subequal, glabrous, stuffed or hollow, colored like the pileus; spores globose, white, .0003 to .00035 in.; milk white, taste *mild*, odor *agreeable, aromatic*.

Pileus .5 to 1.5 in. broad, stem 1 to 2 in. long, 2 to 3 lines thick.

Swamps and wet places, also in woods. Sandlake and Adirondack mountains. July to September.

This plant resembles the preceding species in color, but it differs from it decidedly in size and in taste. The European plant is described as subzonate, but I have seen no zonate specimens. The color of the lamellæ, when old, resembles that of the pileus, though they are paler. The odor is not like that of camphor, as the name would seem to imply. To me it resembles that of dried *Cyperus inflexus* or dried melilot. It is often weak in the fresh plant, but becomes more distinct in the dried specimens, which retain it a long time. Gillet gives the species as edible.

Lactarius subdulcis, *Fr.*

Sweet Lactarius. Sweetish Lactarius.

Agaricus subdulcis, Bull.

Pileus thin, convex, then plane or subinfundibuliform, with or without a small umbo or papilla, glabrous, even, zoneless, moist or dry, tawny-red, cinnamon-red or brownish-red, the margin sometimes wavy or flexuous; lamellæ rather narrow, thin, close, whitish, sometimes tinged with red; stem equal or slightly tapering upward, slender, glabrous, sometimes villous at the base, stuffed or hollow, paler than or colored like the pileus; spores globose, white, .0003 to .00035 in.; milk white, taste mild or tardily and slightly acrid, sometimes woody or bitterish and unpleasant, flesh whitish, pinkish or reddish-gray, odor *none*.

Pileus .5 to 2 in. broad, stem 1 to 2.5 in long 1 to 3 lines thick.

Fields, copses, woods, swamps and wet places. July to October. Very common.

This species grows in almost every variety of soil and locality. It may be found in showery weather on dry, rocky soil, on bare ground or among mosses or fallen leaves. In drier weather it is still plentiful in swamps and wet, shaded places, and in sphagnous marshes. It sometimes grows on decaying wood. It is also as variable as it is common. Gillet has described the following varieties.

Var. *cinnamomeus*. Pileus cinnamon-red, subshining; stem stuffed, then hollow; taste mild, becoming slightly acrid or bitter.

Var. *rufus*. Pileus dull chestnut-red, becoming more concave; stem spongy; taste mild.

Var. *badius*. Pileus bay-red, shining as if varnished, with an obtuse disk and an inflexed, elegently crenulate margin, stem very glabrous, hollow.

The first and second varieties have occurred within our limits. The first also has the stem elastic and furnished with a whitish or grayish tomentum or strigose villosity at the base, when growing among moss in swamps. A form occurred in Sandlake, in which some of the specimens were proliferous. The umbo had developed into a minute pileus. With us the prevailing color of the pileus is yellowish-red or cinnamon-red. Sometimes the color is almost the same as that of *L. volemus* and *L. hygrophoroides*, and again it is a tan color or a bay red, as in *L. camphoratus*, from which such specimens are scarcely separable, except by their lack of odor. In young plants the pileus usually has a moist appearance, which is sometimes retained in maturity. Cordier pronounces the species edible, and says that he has tested it several times without inconvenience.

Lactarius paludinellus, *n. sp*

Little marsh Lactarius.

Pileus thin, plane or slightly depressed, striatulate on the margin, glabrous, generally with a small blackish umbo or papilla, at first *dingy brown, becoming paler with age ;* lamellæ moderately close, adnate or slightly decurrent, cream colored ; stem nearly equal, stuffed or hollow, glabrous, with a white strigose-villosity at the base, paler than or colored like the pileus ; spores .0003 to .00035 in.; milk white, taste mild.

Pileus 6 to 12 lines broad, stem 10 to 18 lines long, 1.5 to 2 thick.

Among sphagnum, in shaded marshes. Sandlake. August.

A small and rare species, related to but distinct from *L. sublucis* by its brownish expellent pileus and striatulate margin.

NEW YORK SPECIES OF PLUTEUS.

PLUTEUS, *Fr.*

Hymenophorum distinct from the fleshy or fleshy-fibrous stem , lamellæ rounded behind, free, at first crowded, white or yellowish, then flesh-colored ; annulus and volva none.

The Plutei, in the pink-spored series of Agarics, correspond very nearly in structure to the Lepiotæ in the white-spored series. They differ from the Lepiotæ in having no annulus ; and by its absence they are distinguished from the Annulariæ of their own series, and by the absence of a volva, from the Volvariæ. By their free lamellæ they are readily separated from all other pink-spored Agarics. The species are generally of medium or moderately small size. Nearly all inhabit decaying wood in groves or in the shades of forests, but the common Fawn Agaric, *P. cervinus*, is often found on old stumps in open situations where it is exposed to the full light of the sun. The pileus may be floccose-fibrillose, pruinose-pulverulent or glabrous, and by these characters Fries has separated the species into three groups. In some species the central part of the pileus is more or less rugose-wrinkled or uneven. The lamellæ are at first compactly crowded (cohærent) very much as in some species of Coprini, and in some species they are apt to become moist or almost deliquescent, especially in damp weather. Their color is generally white or yellowish-white when young, but they soon asssume the salmon hue of the spores. They generally yield these readily and in great abundance. The spores, in our species, are even, with a single exception, and generally subglobose or broadly elliptical.

None of the species are very abundant with us and none are classed as edible.

Synopsis of the Species.

	Pileus glabrous	1
	Pileus not glabrous	2
2	Pileus white	3
2	Pileus not white	5
3	The margin not surpassing the lamellæ	4
3	The thin margin surpassing the lamellæ	sterilomarginatus.
4	Stem glabrous or merely fibrillose (partly)	cervinus.
4	Stem pubescent or subtomentose	tomentosulus.
5	Pileus even or rarely with short marginal striations	6
5	Pileus with long marginal striations	longistriatus.
6	Pileus fibrillose or villose on the disk	7
6	Pileus pulverulent pruinose or granulose	8
7	Lamellæ concolorous on the edge (partly)	cervinus.
7	Lamellæ darker-colored on the edge	umbrosus.
8	Stem velvety-pubescent	granularis.
8	Stem glabrous	nanus.
1	Pileus even (partly)	cervinus.
1	Pileus striate on the margin	leoninus.
1	Pileus rugose-reticulate on the disk	admirabilis.

Pluteus cervinus, *Schæff.*

Fawn-colored Agaric. Fawn Pluteus.

Pileus fleshy, at first campanulate, then convex or expanded, ***even, glabrous, generally becoming fibrillose or slightly floccose-villose*** on the disk, occasionally rimose, variable in color; lamellæ broad, somewhat ventricose, at first whitish, then flesh-colored; stem equal or slightly tapering upward, firm. solid, fibrillose or subglabrous, variable in color; spores broadly elliptical, .00025 to. 00032 in. long, .0002 to .00025 broad.

Plant 2 to 6 inches high, pileus 2 to 4 broad, stem 3 to 6 lines thick.

Decaying wood in groves, borders of woods and open places.

This species, with us, is very common and very variable, yet it is not abundant. Usually but one or two specimens are found at a time It grows especially on or about old stumps and prostrate trunks and may be found in wet weather from May to October.

The typical form has the pileus and stem of a dingy or brown color and adorned with blackish fibrils, but specimens occur with the pileus white, yellowish, cinereous, grayish-brown or blackish-brown. I have never seen it of a true cervine color. It is sometimes quite glabrous and smooth to the touch and in wet weather it is even slightly viscid. It also occurs somewhat floccose-villose on the disk, and the disk, though usually plane or obtuse, is occasionally slightly prominent or subumbonate. The form with the surface of the pileus longitudinally rimose or chinky is probably due to meteorological conditions. The lamellæ, though at first crowded, become more lax with the expansion of the pileus. They are generally a little broader toward the marginal than toward the inner extremity. Their tendency to deliquesce is often shown by their wetting the paper on which the pileus has been placed for the purpose of catching the spores. The stem is usually somewhat fibrous and striated but forms occur in which it is even and glabrous. When growing from the sides of stumps and prostrate trunks it is apt to be curved. Two forms deserve varietal distinction.

Var. *albus.* Pileus and stem white or whitish.

Var. *albipes.* Pileus cinereous yellowish or brown; stem white or whitish, destitute of blackish fibrils.

In Europe there are three or four forms which have been designated as species under the names *A. rigens, A. patricius, A. eximius* and *A. petasatus*, but Fries gives them as varieties or subspecies of *A. cervinus*, though admitting that they are easily distinguished. None of these have occurred in our State. *A. atricapillus,* Batsch., *A. latus,* Bolt., *A. Pluteus,* Pers., and *A. Neesii,* Kl., are given as synonyms of *A. cervinus.*

Pluteus umbrosus, *Pers.*

Shade-loving Agaric. Brown Pluteus.

Pileus fleshy, at first campanulate, then convex or expanded, *rugose wrinkled* and more or less villose on the disk, fimbriate on the margin, *blackish-brown ;* lamellæ broad, somewhat ventricose, at first whitish, then flesh-colored, *blackish-brown and fimbriate or denticulate on the edge ;* stem solid, colored like or paler than the pileus, fibrillose or villose-squamose ; spores elliptical, .0003 in. long, .0002 broad.

Decaying wood and stumps, especially of pine, both in shaded and open places. Not rare.

This is similar in size and general appearance to the preceding species, from which it is readily distinguished by the rugose-villose disk of ths pileus and the dark brown edge of the lamellæ. The color of the pileue is usually darker than in that species. I have not seen it with the margin fimbriate, though this is a prominent character of the species in Europe.

Pluteus granularis, *Peck.*

Granular Pluteus.

Pileus convex or nearly plane, subumbonate, *rugose-wrinkled, granulose or granulose-villose,* varying in color from yellow to brown ; lamellæ rather broad, crowded, ventricose, whitish, then flesh-colored ; stem equal, solid, colored like the pileus, often paler at the top, *velvety-pubescent,* rarely squamulose ; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .0002 to .00025 broad.

Plant 1.5 to 3 inches high, pileus 1 to 2 inches broad, stem 1 to 2 lines thick.

Decaying wood and prostrate trunks in woods. Hilly and mountainous districts. June to September.

The species is closely related to the two preceding, but is readily distinguished from them by the peculiar vesture of the pileus and stem.

The granules are so minute and so close that they form a sort of plush on the pileus, more dense on the disk and radiating wrinkles than elsewhere. The clothing of the stem is finer, and has a velvety-pubescent appearance, but in some instances it breaks up into small scales or squamules. The color of the pileus and stem is usually some shade of yellow or brown, but occasionally a grayish hue predominates. The darker color of the granules imparts a dingy or smoky tinge to the general color. The disk is often darker than the rest of the pileus.

Pluteus nanus, *Pers.*

Dwarf Agaric. Mealy Pluteus.

Pileus somewhat fleshy, thin, convex or nearly plane, obtuse, rugulose, *pulverulent or dingy-pruinose, brown ;* lamellæ close, ventricose, white or yellowish, then flesh-colored ; stem equal, solid, firm, striate, *glabrous*, white or yellowish ; spores subglobose, .0002 to .00025 in. long.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem 1 line thick.

Decaying wood and sticks. Not common nor abundant when it does occur. July to September.

The small size, dingy-mealy or pulverulent pileus and small subglobose spores are characteristic of this species. Small specimens sometimes have the margin of the pileus slightly striate. Large specimens may be distinguished from small forms of the preceding species by the glabrous stem. The European variety *lutescens*, which has the stem and lamellæ yellowish, has not yet been observed in our State. *Agaricus pyrrhospermus*, Bull. is given as a synonym

Pluteus tomentosulus, *Peck.*

Woolly Agaric.

Pileus thin, convex or nearly plane, subumbonate, *minutely villose or squamulose-tomentose*, white ; lamellæ rather broad, rounded behind, crowded, white then flesh-colored ; stem equal, solid, striate, *slightly pubescent or subtomentose*, white ; spores subglobose or broadly elliptical, .00025 to .00032 in. long, .00025 broad, generally containing a single large nucleus.

Plant 2 to 5 inches high, pileus 1 to 3 inches broad, stem 2 to 4 lines thick.

Decaying wood and prostrate trunks. Catskill mountains and Gansevoort. July and August.

This rare but beautiful species appears to be the American analogue of the European. *P. pellitus*, Pers., which differs in its silky pileus and glabrous stem. The entire plant, when young, is pure white, but with advancing age the lamellæ assume the usual pinkish hue and the margin of the pileus is sometimes tinged with the same color.

Pluteus sterilomarginatus, *Peck.*

Sterile-margined Agaric.

Pileus thin, broadly convex or expanded, with a minute close-pressed tomentum, pinkish-white, the thin *margin extending beyond the lamellæ ;* lamellæ close, subventricose, minutely eroded on the edge, tapering toward the outer extremity, pale flesh-colored ; stem short, equal, solid, glabrous, straight or curved, whitish ; spores *subglobose, angular*, .00025 in. broad, usually containing a single central nucleus.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem .5 to 1 line thick.

Decaying trunks and sticks in woods. Portville. September.

This rare species has been found but once. It is much smaller and more delicate than the preceding, and easily distinguished by its thin margin projecting beyond the lamellæ and by the character of the spores. The pileus sometimes cracks in areas, and then it has the appearance of being coated with a thin, scaly paste.

Pluteus longistriatus, *Peck.*

Striated Pluteus.

Pileus thin, convex or expanded, dry, *striate to the disk, cinereous or whitish*, the disk often darker than the margin and minutely squamulose or hairy ; lamellæ broad, ventricose, white, then flesh-colored ; stem equal, glabrous, white ; spores globose, .0003 in. broad.

Plant about 2 inches high, pileus 1 to 1.5 broad, stem about 1 line thick.

Decaying wood. Albany. July.

This species is well marked by the long striations of the pileus. It was discovered in one of the streets of Albany in 1876, but has not been observed since that time. The spores at first sight appear globose, but there is a depression on one side that gives them an orbicular or saucer shape.

Pluteus leoninus, *Schæff.*

Lion-colored Agaric. Yellow Pluteus.

Pileus thin, campanulate, then convex or expanded, *even*, glabrous, moist or subhygrophanous, striate on the margin, yellow or reddish-yellow ; lamellæ rather broad, rounded behind, yellowish or yellowish on the edge, then flesh-colored ; stem equal, *solid*, slightly striate, white or yellowish , spores broadly elliptical, .00028 to .00032 in. long, .00025 broad.

Plant about 2 inches high, pileus 1 to 2 inches broad, stem 2 to 3 lines thick.

Decaying wood in forests. Adirondack mountains. August

This is a very rare species in our State. Its glabrous pileus and yellowish color distinguish it from all the foregoing species, its even pileus and solid stem, from the next following species.

Pluteus admirabilis, *Peck.*

Admirable Pluteus.

Pileus thin, convex or expanded, generally broadly umbonate, glabrous, *rugose-reticulated*, moist or hygrophanous, striatulate on the margin when moist, often obscurely striate when dry, yellow or brown ; lamellæ close, broad, rounded behind, ventricose, whitish or yellowish, then flesh-colored ; stem slender, glabrous, *hollow*, equal or slightly thickened at the base, yellow or yellowish-white, with a white mycelium; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .00025 broad.

Var. *fuscus.* Pileus brown or yellowish-brown.

Plant 1 to 2 inches high, pileus 6 to 10 lines broad, stem .5 o t 1 line thick.

Decaying wood and prostrate trunks in forests. Common in hilly and mountainous districts. July to September.

This beautiful Pluteus is closely related to *P. chrysophlebius,* B. & R., a southern species, which, according to the description, has the veins of the pileus darker colored than the rest of the surface and the stem enlarged above and hairy at the base, characters not shown by our plant. It is also similar to the European *P. chrysophæus,* Schæff., but according to Fries that species is larger and has a more even pileus, which is constantly cinnamon-colored. The variety, which grows with the typical form, sometimes on the same prostrate trunk with it, differs only in color, and forms a connecting link between this species and the European, *P. phlebophorus*, Ditm., from which it is scarcely distinguishable, except by its smaller size, hygrophanous character and striatulate margin. Indeed all the species, together with *P. leoninus,* Schæff., differ from each other by such slight characters that their separation is unsatisfactory. It is quite possible that when the range of their variations is more fully investigated they will be found to constitute a single comprehensive and very variable species. In our plant small young specimens sometimes have the stem solid, but when fully developed it is hollow, though the cavity is small. This character, with its small size, distinguishes it from *P. leoninus.*

EXPLANATION OF PLATE I.

CERCOSPORA COMARI, *Peck.*

Fig. 1. A leaflet spotted by the fungus.
Fig. 2. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 3. Two spores, x 400.

HADROTRICHUM LINEARE, *Peck.*

Fig. 4. Upper part of a leaf bearing linear patches of the fungus.
Fig. 5. A tuft of five flocci, two of them bearing spores, x 400.
Fig. 6. Five spores, x 400.

ENTYLOMA SANICULÆ, *Peck.*

Fig. 7. A leaflet spotted by the fungus.
Fig. 8. Five spores, x 400.
Fig. 9. Four conidia, x 400.

CYLINDROSPORIUM VERATRINUM, *S. & W.*

Fig. 10. Upper part of a leaf bearing linear patches of the fungus.
Fig. 11. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 12. Two spores, x 400.

RAMULARIA OXALIDIS, *Farl.*

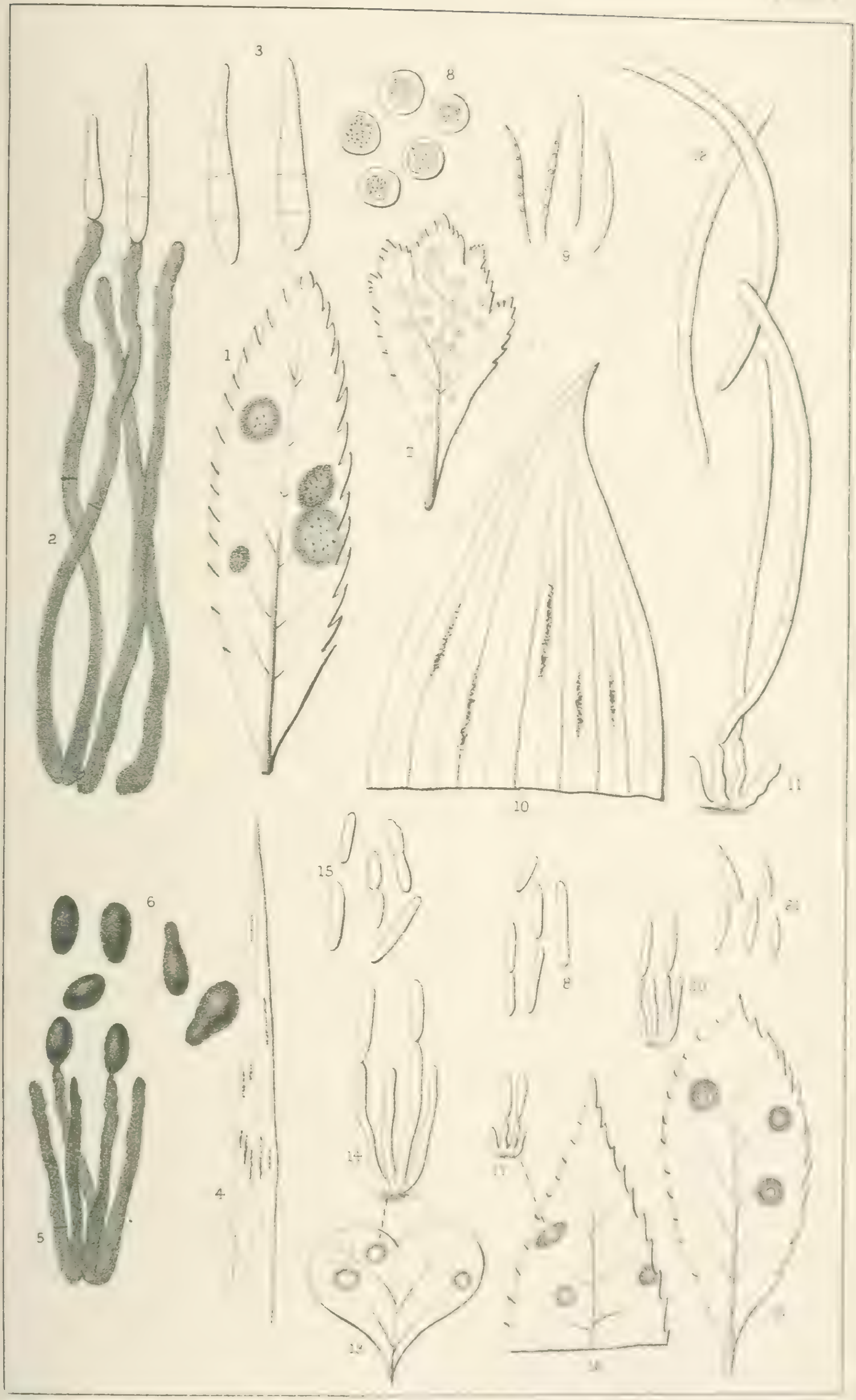
Fig. 13. A leaflet spotted by the fungus.
Fig. 14. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 15. Five spores, x 400.

RAMULARIA DIERVILLÆ, *Peck.*

Fig. 16. Upper part of a leaf spotted by the fungus.
Fig. 17. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 18. Six spores, two of them united end to end, x 400.

RAMULARIA PRINI, *Peck.*

Fig. 19. A leaf spotted by the fungus.
Fig. 20. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 21. Five spores, x 400.



EXPLANATION OF PLATE II.

OVULARIA MONILOIDES, *E. & M.*

Fig. 1. A leaf spotted by the fungus.
Fig. 2. A branchlet with the central part frosted by the fungus.
Fig. 3. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 4. Seven spores, x 400.

AGARICUS (INOCYBE) COMATELLUS, *Peck.*

Fig. 5. Four plants of usual size.
Fig. 6. Vertical section of a pileus and the upper part of its stem.
Fig. 7. A cystidium, x 400.
Fig. 8. Five spores, x 400.

ASCOCHYTA COLORATA, *Peck.*

Fig. 9. A leaflet spotted by the fungus.
Fig. 10. Five spores, x 400.

ASTERINA NUDA, *Peck.*

Fig. 11. Tip of a branchlet with three fungus bearing leaves.
Fig. 12. A leaf showing the fungus on the lower surface, magnified.
Fig. 13. A leaf showing the fungus on the upper surface, magnified.
Fig. 14. An ascus containing spores, x 400.
Fig. 15. Four spores, x 400.

LEPTOSPHÆRIA LYCOPODIICOLA, *Peck.*

Fig. 16. Piece of a branch bearing the fungus.
Fig. 17. A perithecium and its matrix, magnified.
Fig. 18. Two paraphyses and an ascus containing spores, x 400.
Fig. 19. Four spores, x 400.

LEPTOSPHÆRIA CORALLORHIZÆ, *Peck.*

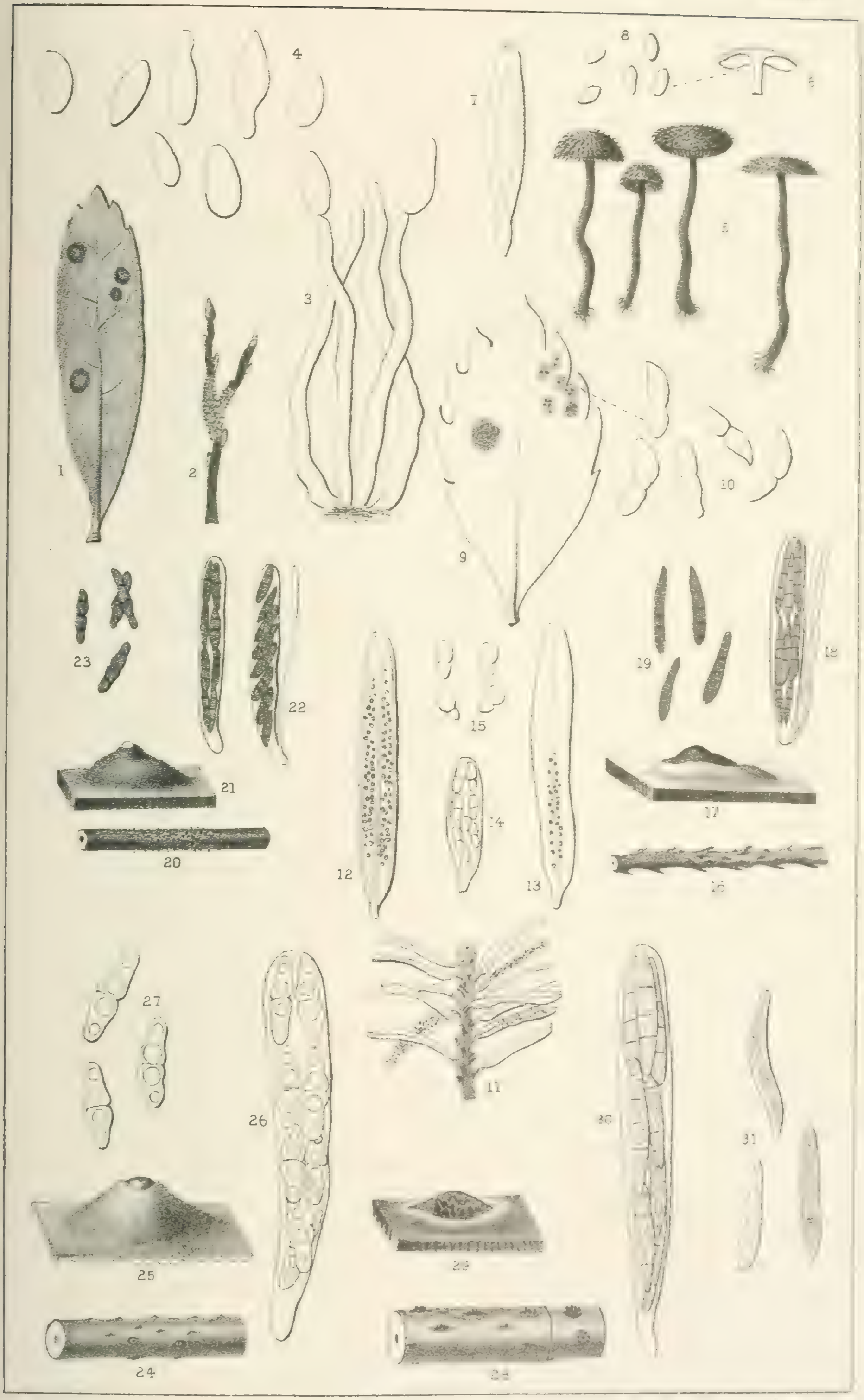
Fig. 20. Piece of a stem, bearing the fungus.
Fig. 21. A perithecium and its matrix, magnified.
Fig. 22. A paraphysis and two asci containing spores, x 400.
Fig. 23. Four spores, x 400.

METASPHÆRIA MYRICÆ, *Peck.*

Fig. 24. Piece of a branch bearing the fungus.
Fig. 25. A perithecium and its matrix, magnified.
Fig. 26. An ascus containing spores, x 400.
Fig. 27. Three spores, x 400.

CRYPTOSPORA CARYÆ, *Peck.*

Fig. 28. Piece of a branch bearing the fungus.
Fig. 29. A pustule and its matrix, magnified.
Fig. 30. An ascus containing spores, x 400.
Fig. 31. Three spores, x 400.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EXPLANATION OF PLATE III.

APPENDICULARIA ENTOMOPHILA, *Peck*.

Fig. 1. Leg of a fly bearing the fungus, magnified.
Fig. 2. A perithecium and its appendages more highly magnified.
Fig. 3. Tip of the perithecial rostrum with spores escaping from its apex, x 400.
Fig. 4. Three spores, x 400.

SPHÆROGRAPHIUM HYSTRICINUM, *Sacc*.

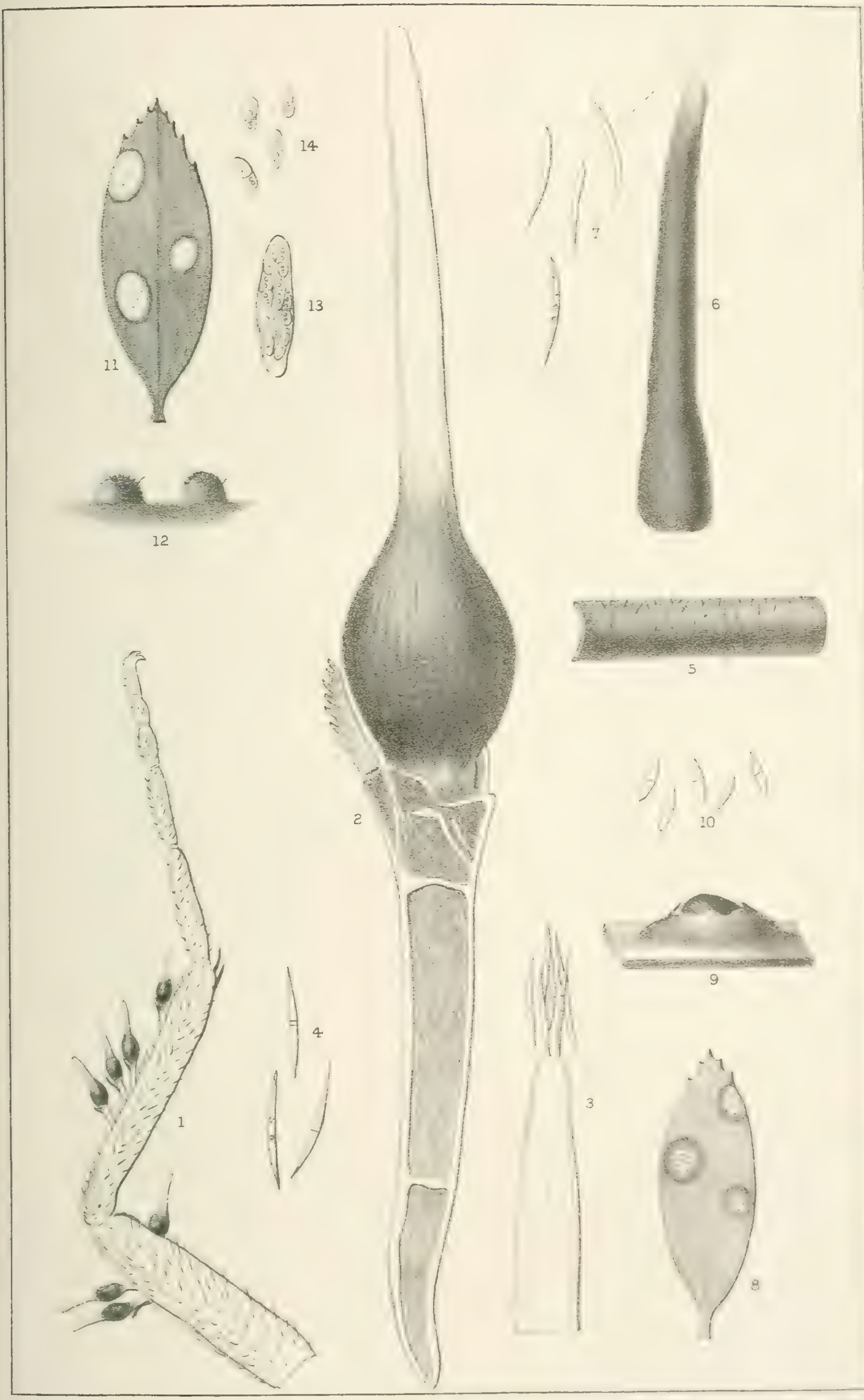
Fig. 5. Piece of bark bearing the fungus.
Fig. 6. A perithecium with spores escaping from its apex, magnified.
Fig. 7. Four spores, x 400.

ASCOCHYTA CASSANDRÆ, *Peck*.

Fig. 8. A leaf spotted by the fungus.
Fig. 9. A perithecium and its matrix, magnified.
Fig. 10. Five spores, x 400.

VENTURIA CASSANDRÆ, *Peck*.

Fig. 11. A leaf spotted by the fungus.
Fig. 12. Two perithecia, magnified.
Fig. 13. An ascus containing spores, x 400.
Fig. 14. Four spores, x 400.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proper exhibition of the collections on hand and to provide for a moderate increase. Area occupied by duplicates which are mainly in drawers, 15,000 square feet.

Number of drawers in State Museum	970
Number of drawers occupied by specimens belonging to the State and arranged in private museum and working rooms of James Hall	3,200
	4,170

Two-thirds of these drawers may be regarded as occupied by duplicate collections. In addition to the specimens in drawers there are large slabs and masses of corals which occupy an area equal to 1,000 drawers.

Besides the rooms for collections, there should be provided a room for a scientific library, which for the present could be limited to an area of 900 or 1,000 square feet with provision for increase in the future.

WORKING ROOMS.— For the Botanist a working-room of 18 x 25 feet would suffice, with adjacent room for the collections, of 25 x 30 feet.

For the general collections in Zoölogy a room for work and study of 20 x 25 feet, a preparatory room, as a work-room, with water, tanks, etc., 25 x 30 feet.

GEOLOGY AND PALÆONTOLOGY. — A receiving-room with space for library in use of 25 x 30 feet and adjacent to a room of 30 x 40 feet furnished with at least 1,000 drawers to contain the collections under investigation and comparison.

Also a wook-room with tables and appliances for cleaning, ticketing and preparing specimens for study and arrangement. This room should, if possible, be adjacent to a lathe-room, with machinery for cutting and polishing specimens. These two rooms would require an area of at least 1,200 square feet.

For general storage of *minerals*, *geological specimens* and *fossils* preparatory to a distribution of the duplicates, a room of 35 x 45 or 40 x 50 feet, with drawers, to contain the specimens and conveniences necessary for the arranging, labeling and packing specimens.

STUDENTS' ROOMS. — Rooms should be provided for students in special branches of scientific study, since the increased attention to science will soon demand such conveniences. These would require an area of 10,000 feet of floor space.

If the building be fire-proof the typical collections may be arranged in the same rooms, but in separate cases, with the general collections of the same department.

Considering the condition of the building now occupied by the State Museum, the committee regard it as very important to secure, as soon as possible, rooms for the typical collections in some fire-proof building. The area required would be 30 x 40 feet.

DIRECTOR'S ROOM. — A small room as a private office for conference, consultation and correspondence should be provided for the Director of the Museum.

REPORT OF THE BOTANIST.

To the Honorable the Board of Regents of the University of the State of New York:

Gentlemen — I have the honor of communicating to you the following statement of the work of the Botanist for 1885:

In the prosecution of the work on the State Herbarium, specimens of plants have been collected in the counties of Albany, Essex, Genesee, Herkimer, Orange, Rensselaer, Saratoga, Schoharie, and Ulster. Of the collected specimens, those representing one hundred and ninety-eight species have been prepared, mounted and added to the Herbarium. Of these, one hundred and fourteen species were not before represented therein. The remaining eighty-four species are illustrated more completely and satisfactorily by the added specimens.

Specimens have been received from nineteen contributors. A large number of these represent extra-limital species of fungi, but among those from this State are six species new to the Herbarium, and not among my collections of the past season. The whole number of added species, both collected and contributed, is two hundred and ten; the whole number new to the Herbarium is one hundred and twenty. A list of the names of the added species is marked (A). A list of the names of the contributors and their respective contributions is marked (B).

Descriptions of forty-two species of fungi, which are deemed new or hitherto unpublished, have been prepared. A part of these have been illustrated by two plates of drawings. The descriptions of new species, together with a record of the occurrence and locality of others new to our flora, are in a part of the report marked (C).

A record of observations on common or well-known species not new to our flora is marked (D). It has reference to any thing peculiar, interesting, or instructive in the variation, distribution, behavior or habitat of the plant. Sometimes useful hints may be obtained by such observations. For example, a variety of the common blueberry, *Vaccinium Pennsylvanicum*, was noticed on the summit of one of the mountains in the northern part of Saratoga county. Its fruit was black and shining, destitute of bloom, very large, sweet, juicy and pleasant flavored. It grew in compact clusters at the ends of the branches, and could be easily and rapidly picked. Such a susceptibility to variation and improvement in the fruit of this plant, in its natural and wild condition, indicates for it a peculiar value and a possibility of usefulness under cultivation and domestication.

An interesting point in the behavior of some of our pulpy-fruited trees and shrubs the past season, and one that seems worthy of record, is their great productiveness. In this part of the State wild-cherry trees, cornel bushes, viburnums, wild gooseberry bushes, various blueberry bushes and the shadbush were all observed heavily laden with fruit. In the Adirondack region the crop of Canadian blueberries (*Vaccinium Canadense*) was remarkable both for its abundance and for the large size and fine quality of the berries. In the Albany market the fruit of the shadbush (*Amelanchier Canadensis*) was offered for sale under the name "blueberries," its very abundance, apparently, having prompted the attempt to introduce it. The name given it, however, was scarcely appropriate, since there is nothing in its botanical relations or in its color suggestive of it. This unusual fruitfulness extended in some instances to cultivated fruit trees. For example, pears were never more plentiful nor cheaper in our markets than in the season just passed. The cause of this exceptional productiveness is apparently, to a great extent, climatic, yet it is interesting to trace effects to causes, even when the latter are beyond our control. In the eastern and northern part of the State, at the time when these fruit trees and shrubs were in flower, there was almost continuous fair weather with little or no rain. This was favorable to the extensive pollenization of the flowers. Insects could ply their vocation and carry pollen from flower to flower, day after day, without interruption or hindrance. The consequence was the young fruit set in abundance. This was followed later in the season by frequent showers and generous rains, which afforded the necessary moisture for the proper and full development of the fruit. Possibly the late and severe frosts of the spring of 1884 may have contributed something toward this result, by diminishing the fruitfulness of that year, and thus leaving the trees and shrubs in a more vigorous condition this year, and, therefore, more capable of perfecting an abundant crop.

In pursuance of the plan of giving, from time to time, monographs of certain groups or genera of our Agaricini, descriptions have been written of the New York species of the genera Pleurotus, Claudopus and Crepidotus. To these genera belong such Agarics, mostly wood-inhabiting, as are either wholly destitute of a stem or have it lateral or eccentric. The spore characters have been given in all cases. The great importance of this in the descriptions of Agarics will readily be seen in some of the species now described. Thus *Pleurotus spathulatus*, the Spathulate Agaric, and *Pleurotus petaloides*, the Petal-like Agaric, have generally been considered one and the same species, probably through neglect of the spore characters. But it seems to me that any one examining the spores of the two forms will at once pronounce them distinct. The general neglect of the spore characters of Agarics by European authors is much to be regretted and is often the source of much perplexity in the identification of our species. The descriptions of the species of the three genera mentioned are marked (E).

The Herbarium has been removed from Geological Hall to State Hall. It now occupies a room on the second floor of the building and is in more commodious quarters than before.

Thanks are due to the correspondents and botanists who have aided me in the prosecution of my botanical work, both by the contribution of specimens and of information.

Very respectfully submitted,
CHAS. H. PECK.

ALBANY, *December* 31, 1885.

(A.)

PLANTS MOUNTED.

New to the Herbarium.

Solidago speciosa *Nutt.*
Betula nigra *L.*
Cypripedium candidum *Muhl.*
Eragrostis Frankii *Meyer.*
Agaricus lascivus *Fr.*
A. rubescentifolius *Pk.*
A. cerussatus *Fr.*
A. amplus *Pers.*
A. esculentoides *Pk.*
A. fuscolilacinus *Pk.*
A. amabillissimus *Pk.*
A. spathulatus *Pers.*
A. atropellitus *Pk.*
A. pascuensis *Pk.*
A. fuscogriseëllus *Pk.*
A. formosus *Fr.*
A. depluens *Fr.*
A. marginatus *Batsch.*
A. unicolor *Fr.*
A. blattarius *Fr.*
A. calamistratus *Fr.*
A. eutheles *B. & Br.*
A. alnicola *Fr.*
A. elatior *Pk.*
A. croceitinctus *Pk.*
Cortinarius arenatus *Fr.*
Hygrophorus pudorinus *Fr.*
Russula crustosa *Pk.*
Boletus subaureus *Pk.*
B. flavipes *Pk.*
Polyporus confluens *Fr.*
Hydnum geogenium *Fr.*
H. farinaceum *Pers.*
Grandinia granulosa *Fr.*
Corticium puteanum *Fr.*
C. radiosum *Fr.*
C. cinerascens *Berk.*
Clavaria circinans *Pk.*
C. gracilis *Pers.*
C. byssiseda *Pers.*
Tremella pinicola *Pk.*
Siphoptychium Caspari *Rostf.*
Phyllosticta Mitellæ *Pk.*
P. Hamamelidis *Pk.*
Dendrophoma Tiliæ *Pk.*
D. Cephalanthi *Pk.*
Cytispora intermedia *Sacc.*
Phoma aquilina *S. & P.*
P. strobiligena *Desm.*
P. sordida. *Sacc*
P. Phillipsiana *S. & R.*
P. Clintonii *Pk.*
P. Majanthemi *Pk.*
Sphæropsis tiliacea *Pk.*
S. Linderæ *Pk.*
S. Juniperi *Pk.*
Sphæropsis pallida *Pk.*
S. sphærospora *Pk.*
S. maculans *Pk.*
Coniothyrium Staphyleæ *Pk.*
Vermiculari uncinata *B. & C.*
Septoria oleandrina *Sacc.*
S. Osmorrhizæ *Pk.*
S. lineolata *S. & S.*
S. graminum *Desm.*
Rhabdospora Xanthii *Pk.*
R. pleosporoides *Sacc.*
Phlyctæna septorioides *Sacc.*
P. complanata *Sacc.*
Diplodina Ellisii *Sacc.*
Zythia ovata *Pk.*
Thyrsidium Micheneri *Sacc.*
Marsonia Martini *S. & E.*
Coryneum compactum *B. & Br.*
Pestalozzia Saccardoi *Speg.*
P. consocia *Pk.*
P. campsosperma *Pk.*
Uredo Ledi *A. & S.*
Puccinia hastata *Cke.*
Gymnosporangium clavariæforme *D. C.*
Periconia pycnospora *Fres.*
Sporodinia grandis *Lk.*
Illosporium humigenum *P. & S.*
Monilia Peckiana *S. & V.*
Ramulari Geranii *Fckl.*
Saprolegnia ferax *Kutz.*
Geoglossum viscosum *Pers.*
Leotia marcida *Pers.*
Godronia Cassandræ *Pk.*
Tympanis saligna *Tode.*
Stictis Saccardoi *Rehm.*
Lichenopsis sphæroboloidea *Schw.*
Ascomyces extensus *Pk.*
Microsphæria Ceanothi *Pk*
Valsa rhoophila *C. & E.*
V. glandulosa *Cke.*
V. cenisia *D. N.*
Læstadia Æsculi *Pk.*
Rosellinia ambigua *Sacc.*
R. mastoidea *Sacc.*
Hypoxylon semiimmersum *Nits.*
Sphærella maculosa *Sacc.*
S. macularis *Auersw.*
S. Lycopodii *Pk.*
Diaporthe Carpini *Fckl.*
D. Robergeana *Niessl.*
D. galericulata *Sacc.*
D. Neilliæ *Pk.*
D. marginalis *Pk.*
D. sparsa *Pk.*
Didymosphæria bacchans *Pass.*
Leptosphæria Typharum *Karst.*
L. Kalmiæ *Pk.*
Zignoella diaphana *Sacc.*

Pyrenophora relicina *Sacc.*
Cryptospora Tiliæ *Tul.*
Hypocrea fungicola *Karst.*
Pleonectria Berolinensis *Sacc.*

Not new to the Herbarium.

Ranunculus acris *L.*
R. multifidus *Ph.*
Actæa alba *Bigel.*
A. rubra *Mx.*
Arabis lyrata *L.*
Barbarea vulgaris *R. Br.*
Camelina sativa *Crantz.*
Amelanchier Canadensis *T. & G.*
Potentilla Canadensis *L.*
Pryus arbutifolia *L.*
Ribes rubrum *L.*
R. rotundifolium *Mx.*
R. hirtellum *Mx.*
Thaspium aureum *Nutt.*
Cornus paniculata *L'Her.*
Lonicera oblongifolia. *Muhl.*
Petasites palmata *Gr.*
Senecio aureus *L.*
Vaccinium Pennsylvanicum *Lam.*
Castilleia coccinea *Spreng.*
Gratiola aurea *Muhl.*
Echium vulgare *L.*
Hydrophyllum Virginicum *L.*
Menyanthes trifoliata *L.*
Apocynum androsæmifolium *L.*
Asclepias obtusifolius *Mx.*
A. tuberosa *L.*
Chenopodium album *L.*
Atriplex patula *L.*
Amarantus blitoides *Wats*
A. hypochondriacus *L.*
Euphorbia Peplus *L.*
Celtis occidentalis *L.*
Morus alba *L.*
Alnus viridis *D.C.*
Salix longifolia *Muhl.*
Populus monilifera *Ait.*
P. balsamifera *L.*
Abies nigra *Poir.*
A. balsamea *Marsh.*
Juniperus sabina *L.*
Arisæma triphyllum *Torr.*
Orontium aquaticum *L.*
Triglochin maritimum *L.*
Cypripedium acaule *Ait.*
C. pubescens *Willd.*
C. parviflorum *Salisb.*
Liparis Lœselii *Rich.*
Uvularia grandiflora *Sm.*
U. sessilifolia *L.*
Streptopus roseus *Mx.*
Fimbristylis capillaris *Gr.*
Cyperus cylindricus *Britton.*
Carex gynocrates *Wormsk.*
C. sterilis *Willd.*
C. canescens *L.*
C. pedunculata *Muhl.*
C. Emmonsii *Dew.*
C. gynandra *Schw.*
C. pseudocyperus *L.*
Festuca elatior *L.*
Osmunda regalis *L.*
Agaricus Austinii *Pk.*
A. sapidus *Kalchb.*
Lentinus strigosus *Schw.*
Marasmius androsaceus *Fr.*
Trogia crispa *Fr.*
Polporus Vaillantii *Fr.*
P. biformis *Fr.*
P. adustus *Fr.*
P. applanatus *Fr.*
P. fomentarius *Fr.*
P. pinicola *Fr.*
P. betulinus *Fr.*
P. albellus *Pk.*
P. chioneus *Fr.*
Irpex cinnamomeus *Fr.*
Hydnum mucidum *Pers.*
Stereum versiforme *B. & C.*
S. spadiceum *Fr.*
S. versicolor *Fr.*
Clavaria pyxidata *Pers.*
Sphæronema pruinosum *Pk.*
Puccinia Calthæ *Lk.*
Ustilago Junci *Schw.*
Fusicladium dendriticum *Wallr.*
Macrosporium Cheiranthi *Fr.*
Glomerularia Corni *Pk.*
Uncinula spiralis *B. & C.*
Metasphæria Peckii *Sacc.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. L. L. Goodrich, Syracuse, N. Y.

Trillium grandiflorum *Salisb.* var. variegatum *Pk.*

Miss E. G. Knight, New York, N. Y.

Fruit of Salisburia adiantifolia *Sm.*

Mrs. L. A. Millington, New Russia, N. Y.

Festuca elatior *L.*

Mrs. M. M. Patten, Albany, N. Y.

Pyxidanthera barbulata *Mx.*

Rev. W. M. Beauchamp, Baldwinsville, N. Y.

Hydrocotyle umbellata *L.*
Cypripedium acaule *Ait.*

Prof. F. Lamson Scribner, Washington, D. C.

Bromus sterilis *L.*
B. tectorum *L.*
Elymus Virginicus *L.*
Buchloe dactyloides *Engl.*
Arundinaria tecta *Muhl.*
Poa arachnifera *Torr.*
Chloris verticillata *Nutt.*
Deschampsia atropurpurea *Wahl*
Melica mutica *Walt.*
M. diffusa v. nitens *Scrib.*
Setaria verticillata *Br.*

F. E. Wood, Clifton, Mich.

Amelanchier Can. v. oligocarpa *Gr.*
Artemisia frigida *Willd.*
Mertensia paniculat *Don.*
Vaccinium myrtilloides *Hook.*
Castilleia pallida *Kunth.*
Physalis grandiflora *Hook.*
Betula glandulosa *Mx.*
Calypso borealis *Salisb.*
Corallorhiza Macraei *Gr.*
Comandra livida *Rich.*
Aspidium Lonchitis *Sw.*

W. C. Stevenson, Jr., Philadelphia, Pa.

Puccinia Cryptotæniæ *Pk.*

E. S. Miller, Wading River, N. Y.

Crantzia lineata *Nutt.*

Geo. A. Rex, M. D., Philadelphia, Pa.

Siphoptychium Casparya *Rostf.*

E. A. Rau, Bethlehem, Pa.

Æcidium Dicentræ *Trelease.*
Æ. tenue *Schw.*
Glœosporium betularum *E. & M.*
Fusarium scolecoides *S. & E.*
Gonatobotrys maculicola *Wint.*

E. C. Howe, M. D., Lansingburgh, N. Y.

Solidago speciosa *Nutt.*
Rumex Brittanica *L.*
Trifolium hybridum *L.*
Aster Tradescanti *L.*
Eragrostis Frankii *Pursh.*
Carex siccata *Dew.*
C. alopecoidea *Tuckm.*
C. scabrata *Schw.*
C. monile *Tuckm.*

H. C. Gordinier, Troy, N. Y.

Negundo aceroides *Mœnch.*
Fedia radiata *Mx.*
Patasites palmata *Gr.*
Solidago uliginosa *Nutt.*
S. Virg. v. alpina *Bigel.*
Nabalus nanus *D. C.*
Juncus pelocarpus *Meyer.*
Aster ptarmicoides *T. & G.*
Hieracium pilosella *L.*
H. aurantiacum *L.*
Statice Limonium *L.*
Pogonia verticillata *Nutt.*
Salix longifolia *Muhl.*
Carex Buxbaumii *Wahl.*
Trisetum subspicatum *Br.*

W. H. Kellerman, Manhattan, Kansas.

Polyporus picipes *Fr.*
P. adustus *Fr.*
P. fraxinophilus *Pk.*
Merulius tremellosus *Schrad.*
Craterellus cornucopioides *Fr.*
Stereum frustulosum *Fr.*
Hirneola auricula-Judæ *Berk.*
Phyllosticta Podophylli *Wint.*
P. labruscæ *Thüm.*
P. Chenopodii *West.*
P. Ampelopsidis *E. & M.*
P. smilacina *E. & M.*

Septoria Verbenæ *R. & D.*
S. Cerastii *R. & D.*
S. Verbascicola *B. & C.*
Leptostroma vulgare *Fr.*
L. Actææ *Schw.*
Sphæronema Persicæ *Schw.*
Vermicularia Dematium *Fr.*
Darluca filum *Cast.*
Phragmidium Potentillæ *Pers.*
Puccinia nigrescens *Pk.*
P. solida *Schw.*
P. Menthæ *Pers.*
P. Silphii *Schw.*
P. Sorghi *Schw.*
P. Artemisiarum *Duby.*
P. Polygonorum *Lk.*
P. Mariæ-Wilsoni *Clinton*
P. Myrrhis *Schw.*
P. Chærophylli *Purt.*
P. Xanthii *Schw.*
P. aculeata *Schw.*
Uromyces Lespedezæ (*Schw.*)
U. Hyperici *Schw.*
U. appendiculata *Lev.*
Ustilago segetum *Lk.*
Roestelia lacerata *Tul.*
Æcidium Caladii *Schw.*
Æ. Dicentræ *Trel.*
Æ. Œnotheræ *Pk.*
Æ. leucospermum *D. C.*
Æ. Ficariæ *Pers.*
Uredo Smilacis *Schw.*
U. Agrimoniæ *D. C.*
U. Alchemillæ *Pers.*
Trichobasis Crotonis *Cke.*
Coleosporium Sonchi *Pers.*
Chrysomyxa pyrolatum *Kœnig.*
Synchytrium decipiens *Farl.*
S. Taraxaci *De By.*
S. Anemones *Woron.*
Sporocybe byssoides *Fr.*
Macrosporium Maydis *C. & E.*
M. Solani *E. & M.*
Helminthosporium gracile *Wallr.*
Pyricularia grisea *Sacc.*
Cercospora Gymnocladi *E. & M.*
C. Ampelopsidis *Pk.*
Ramularia rufomaculans *Pk.*
Cylindrosporium Fraxini *E. & M.*
Peronospora gangliformis *De By.*
Cystopus cubicus *Lev.*
Botrytis vulgaris *Berk.*
Peziza nivea *Fr.*
Phacidium Medicaginis *Lasch.*
Exoascus deformans *Fckl.*
Podosphæria tridactyla *De By.*
Uncinula macrospora *Pk.*
U. adunca *Lev.*
Microsphæria Euphorbiæ *B. & C.*
Eyrsiphe Martii *Lev.*
E. lamprocarpa *Lev.*
Sphæria Arthuriana *Sacc.*
Diatrype hypophlœa *B. & C.*
Rosellinia millegrana *Schw.*
Hypoxylon atropunctatum *Schw.*
H. Sassafras *Schw.*
Gnomonia setacea *C. & D.*
Melanomma pulvis-pyrius *Fckl.*
Ophiobolus porphyrogonus *Sacc.*
Sphærella maculæformis *Pers.*
Phyllachora Trifolii *Fckl.*
Pleonectria denigrata *Wint.*

Hon. G. W. Clinton, Albany, N. Y.

Rhabdospora pleosporoides *Sacc.*
Phoma Clintonii *Pk.*
Illosporium humigenum *P. & S.*
Læstadia Æsculi *Pk.*
Morus alba *L.*

Arthur Peck, Sandlake, N. Y.

Populus balsamifera *L.*

H. W. Harkness, M. D., San Francisco, Cal.

Montagnites Candollei *Fr.*
Polyporus leucospongia *C. & H.*
Thelephora Harknessii *Ph.*
Corticium carneum *B. & Cke.*
C. pactolinum *C. & H.*
Hymenula aciculosa *E. & H.*
Octaviana rosea *Hk.*
Polyplocium Californicum *Hk.*
P. inquinans *Berk.*
Arcyria vitellina *Ph.*
Cryptosporium Lupini *Cke.*
Chromosporium lateritium *C. & H.*
Chætophoma atriella *C. & H.*
C. quercifolia *Cke.*
Septoria Aceris *B. & Br.*
Morthiera Mespili *Fckl.*
Marsonia Populi *Desm.*
M. Potentillæ *S. & E.*
M. Neilliæ *Hk.*
Glœosporium Pteridis *Hk.*
G. nervisequum *Fckl.*
Septoglœum defolians *Hk.*
S. Fraxini *Hk.*
S. maculans *Hk.*
S. Nuttallii *Hk.*
Diplodia lata *C. & H.*
D. Eucalypti *C. & H.*
D. Pittospori *C. & H.*
D. millegrana *C. & H.*
D. Symphoricarpa *C. & H.*
D. Sarothamni *C. & H.*
D. extensa *C. & H.*

Diplodia Lupini *C. & H.*
D. Amygdali *C. & H.*
D. maculata *C. & H*
D. Phoradendri *Cke.*
D. decorticata *C. & E.*
Macrodiplodia Sambuci *Cke.*
M. Arctostaphyli *Vize.*
Hendersonia Lupini *C. & H.*
Harknessia Eucalypti *Cke.*
Pestalozzia Moorei *Hk.*
P. anomala *Hk.*
Dichomera Compositarum *C. & H.*
Phragmidium Fragariæ *D. C.*
Uromyces intricata *Cke.*
U. Terebinthi *D. C.*
U. Nevadensis *Hk.*
U. Spragueæ *Hk.*
U. Chorizanthis *E. & H.*
Puccinia variolans *Hk.*
P. evadens *Hk.*
P. Symphoricarpi *Hk.*
P. Harknessii *Vize.*
P. Œnotheræ *Vize.*
P. striata *Cke.*
P. Solani *Cke.*
P. Asari *Lk.*
Sorosporium Californicum *Hk.*
Synchytrium papillatum *Farl.*
S. pluriannulatum *Farl.*
Graphiola phœnicis *Poir.*
Torula glutinosa *C. & H.*
Camptoum cuspidatum *C. & H.*
Triposporium elegans *Cd.*
Theclospora bifida *Hk.*
Stigmina Platani *Sacc.*
S. Thermopsi *Hk.*
Chætopsis fusca *Cd.*
Zygosporium oscheoides *Mont.*
Helicosporium vegetum *N.*
Chalaza setosa *Hk.*
C. fusidioides *Cd.*
C. montellica *Sacc.*
C. brachyptera *Sacc.*
Beltrania quernea *Hk.*
Hemileia vastatrix *B. & Br.*
Cercospora glomerata *Hk.*
Didymaria spissa *Hk.*
Dicranidion fragile *Hk.*
Volutella Buxi *Berk.*
Helvella Californica *Ph.*
Peziza tautilla *Ph. & H.*
P. Escholtziæ *Ph. & H.*
P. labrosa *Ph. & H.*
P. sphærophoroides *Ph. & H.*
Phillipsiella purpurea *Ph. & H.*
Belonidium fuscum *Ph. & H.*
Cenangium ferruginosum *Fr.*
Phacidium Arbuti *C. & H.*
P. albidum *Ph. & H.*
P internum *Ph.*
Rhytisma Arbuti *Ph.*
R. punctatum *Fr.*
Stictis Lupini *Ph. & H.*
S. Megarrhizæ *Ph. & H.*
S. monilifera *Ph. & H.*
S. pelvicula *Ph.*
Triblidium rufulum *Spr.*
T. turgidulum *Ph. & H.*
Hysterium connivens *C. & H.*
H. Eucalypti *Ph. & H.*
H. prominens *Ph. & H.*
H. formosum *Cke.*
H. Mulleri *Duby.*
Ailographum acicolum *Hk.*
A. reticulatum *Ph. & H.*
Geopora Cooperi *Hk.*
Sphærotheca lanestris *Hk.*
Asterina anomala *C. & H.*
Capnodium heteromeles *C. & H.*
Lasiobotrys affinis *Hk.*
Valsa Lupini *C. & H.*
V. agnostica *C. & H.*
Diatrype prominens *C. & H.*
D. disciformis *Fr.*
Hypoxylon stigmateum *Cke.*
Gnomonia Coryli *Batsch.*
G. Alni *Plow.*
Phomatospora Datiscæ *Hk.*
Trabutia quercina *S. & R.*
Botryosphæria ambigua *Sacc.*
Sphærella Umbellulariæ *C. & H.*
S. Dendromeconis *C. & H.*
Eriosphæria investans *Cke.*
Diaporthe Lupini *Hk.*
D. gorgonoidea *C. & H.*
Amphisphæria decorticata *C. & E.*
A. dothideospora *C. & H.*
Valsaria Eucalypti *K. & C.*
Leptosphæria Ceanothi *C. & H.*
L. Ogilviensis *B. & Br.*
L. consessa *C. & E.*
L. Californica *C. & H.*
Heptameria mesædema *Sacc.*
Massaria pulchra *Hk.*
Pleospora vitrispora *C. & H.*
P. compressa *Hk.*
Thyridium Garryæ *C. & H.*
Sphæria tumulata *Cke.*
S. conflicta *Cke.*
S. confertissima *Plow.*
S. epipteridis *C. & H.*
S. anisometra *C. & H.*
Dialonectria filicina *C. & H.*
D. depallens *C. & H.*
D. Eucalypti *C. & H.*
Thyronectria virens *Hk.*
Acrospermum corrugatum *Ell.*
Dothidea Sequoiæ *C. & H.*
Ophiodothis tarda *Hk.*
Plowrightia phyllogona *Hk.*
P. Calystegiæ *C. & H*
P. tuberculiformis [illegible]
Lophiostoma congregatum *Hk.*

C. Vanderloo, Albany, N. Y.

Specimen of root with enlargement.

J. J. Brown, M. D., Sheboygan, Wis.

Cylindrosporium Rubi *E. & M.*

George L. English, Philadelphia, Pa.

Schizea pusilla *Pursh.*

(C.)

PLANTS NOT BEFORE REPORTED.

Solidago speciosa, *Nutt.*

Brunswick, Rensselaer county. *E. C. Howe.*

Eragrostis Frankii, *Meyer.*

Center island near the railroad bridge at Troy. *Howe.*

Agaricus (Tricholoma) rubescentifolius, *n. sp.*

Pileus thin, convex or nearly plane, subumbilicate, at first brownish, then smoky-yellow, sometimes obscurely squamulose; lamellæ narrow, close, adnexed, creamy-white or pale yellow, becoming smoky-red in drying; stem glabrous or slightly fibrillose, hollow, pruinose at the top, colored like the pileus; spores minute, subglobose, .00016 to .0002 in. long.

Plant subcæspitose, 1 to 1.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Pine stumps. North Greenbush. Aug.

Agaricus lascivus, *Fr.*

Woods. Delmar. Sept. The plant is apparently a variety, being odorless and having the pileus almost white.

Agaricus cerussatus, *Fr.*

Thin woods. Karner. Sept.

Agaricus amplus, *Pers.*

Sandy soil. Karner. Sept.

Agaricus (Collybia) fuscolilacinus, *n. sp.*

Pileus thin, convex, glabrous, hygrophanous, even and watery-brown when moist, lilac-brown and rugose when dry; lamellæ close, ventricose, adnexed, brownish; stem slender, flexuous, hollow, colored like the pileus, mealy or pruinose at the top, with a whitish villosity at the base; spores subglobose or broadly elliptical, .00016 to .0002 in. long.

Pileus 4 to 8 lines broad, stem 1.5 to 3 in. long, about 1 line thick.

Among moss and fallen leaves in open places in woods. Adirondack mountains. Aug.

The species should be referred to the section Tephrophanæ.

Agaricus (Collybia) esculentoides, *n. sp.*

Pileus hemispherical or convex, umbilicate, glabrous, pale yellowish-brown; lamellæ moderately close, broad, thick, whitish; stem slender, hollow, somewhat tenacious, colored like the pileus; spores elliptical, .00025 to .0003 in. long, .0002 in. broad.

Pileus 8 to 12 lines broad, stem 1.5 to 2 in. long, 1 to 1.5 lines thick.

Sandy soil. West Albany. Karner and Delmar. Sept.

This species resembles *A. esculentus* in size and color, but it differs in its stem which is not radicated, and in its pileus which soon becomes umbilicate or more or less centrally depressed. It has a bitter taste, a character attributed to *A. esculentus* also. Our plant occurred in autumn, but *A. esculentus* is said to grow in early spring.

Agaricus (Mycena) amabillissimus, *n. sp.*

Pileus submembranous, campanulate, obtuse or acute, glabrous, obscurely striatulate when moist, bright-red or scarlet; lamellæ ascending, whitish or tinged with red; stem slender, pallid, subpellucid, with a white villosity at the base.

Pileus 3 to 6 lines broad and high; stem about 1 in. long.

Among mosses and ferns in marshes. Karner. Sept.

This species is closely related to *A. acicula* of which it may possibly be a large form, but inasmuch as it differs not only in size but also in its longer and more conical or campanulate pileus and in its differently colored lamellæ it seems best to keep it distinct.

Agaricus spathulatus, *Pers.*

Ground. Sandlake. June.

Agaricus (Pleurotus) atropellitus.

Decaying wood and bark both of frondose and acerose trees. Maryland. Helderberg and Adirondack mountains. June to Oct.

Agaricus (Clitopilus) pascuensis, *n. sp.*

Pileus fleshy, compact, centrally depressed, glabrous, pale-alutaceous, the cuticle of the disk cracking into minute areas; lamellæ rather narrow, close, decurrent, whitish, becoming flesh-colored; stem short, equal or tapering downward, solid, glabrous, colored like the pileus; spores subelliptical, pale-incarnate, .0003 to .0004 in. long, .0002 to .00025 broad.

Pileus 2 to 3 in. broad, stem 8 to 18 lines long, 4 to 6 lines thick.

Pastures. Day, Saratoga county. July.

The species is closely related to *A. prunulus*. It has a farinaceous taste but no odor. Its shorter spores, its pileus without any pruinosity and appearing slightly scaly on the disk and tinged with tan color will readily distinguish it from that species. *A. prunulus* grows in woods in autumn, this species in pastures in midsummer. It is solitary or gregarious.

Agaricus (Nolanea) fuscogriseëllus, *n. sp.*

Pileus submembranous, convex, conic or campanulate, either with or without a central papilla, hygrophanous, grayish-brown, and striatulate when moist, paler and shining when dry, but the disk or papilla often remaining dark-colored; lamellæ moderately close, subventricose, whitish, then flesh-colored; stem slender, brittle, glabrous, hollow, slightly pruinose, or mealy at the top, pallid or livid, with a white mycelium at the base; spores irregular, .0004 in. long, .0003 broad.

Pileus 6 to 12 lines broad, stem 1.5 to 3 in. long, 1 to 2 lines thick.

Mossy ground in open places. Adirondack mountains. Aug. This is more slender than *A. pascuus* to which it is related, and its stem is not fibrous and silky.

Agaricus formosus, *Fr.*

Woods and open places, especially under brakes, *Pteris aquilina*. Adirondack mountains. Aug.

It closely resembles the very common *A. asprellus*, from which it may be distinguished by the yellowish hue of the pileus.

Agaricus depluens, *Fr.*

Decaying wood. Catskill mountains. Gansevoort and Sterling. July and August.

Agaricus marginatus, *Batsch.*

Decaying wood. Guilderland. Sept.

Agaricus unicolor, *Fr.*

Decaying wood. Adirondack mountains. Aug. In color and size this species bears a striking resemblance to *A. laccatus*, but its habitat and the character of the spores readily distinguish it.

Agaricus blattarius, *Fr.*

Woods. Adirondack mountains. Aug.

Agaricus calamistratus, *Fr.*

Damp ground. Delmar. Sept. Our specimens had no decided odor, but the essential characters of the species, including the peculiar bluish color toward the base of the stem, were present.

Agaricus eutheles, *B. & Br.*

Under pine trees. West Albany. Sept. In these specimens the farinaceous odor attributed to the species was not observed, but the other characters were present.

Agaricus alnicola, *Fr.*

At the base of alders and on birch stumps. Delmar. Sept.

The American specimens have the bitter taste ascribed to the European plant. The form found on birch stumps has the lamellæ rounded behind, while that found at the base of alders has them adnate. The young plant has a noticeable annulus but it nearly or quite disappears with age.

Agaricus (Naucoria) elatior, *n. sp.*

Pileus thin, at first conical or subcampanulate, then convex or nearly plane, glabrous, slightly viscid and striatulate on the margin when moist, livid or grayish-brown; lamellæ broad, ventricose, distant, whitish or livid, then dark-ferruginous, white on the edge; stem elongated, slender, hollow, flexuous, slightly fibrillose, pallid; spores brownish-ferruginous, oblong-elliptical, .0007 to .0008 in. long, .0003 to .0004 broad.

Pileus 5 to 10 lines broad, stem 3 to 5 in. long, about 1 line thick.

In sphagnum. Karner. Sept. Related to *A. scorpioides*.

Cortinarius arenatus, *Fr.*

Sandy soil under pine trees. Delmar. Sept.

A form with longer stem and subconical pileus sometimes occurs in marshes among sphagnum.

Hygrophorus pudorinus, *Fr.*

Pine woods. Delmar. Sept.

Our plant does not strictly agree with the description of the species to which we have referred it. The color of the pileus is darker in the center, where it is a brownish-red, but it fades toward the margin, where it is nearly white. The stem is not conspicuously contracted at the apex, but in other respects it agrees so well with the description of *H. pudorinus* that it seems to us to belong to that species.

Russula crustosa, *n. sp.*

Pileus at first convex, then nearly plane or centrally depressed, slightly viscid when moist, striate on the margin, brownish yellow, greenish or subolivaceous, the cuticle cracking and forming small spot-like areolæ or pseudo-verrucæ; lamellæ nearly entire, some of them forked at the base, narrowed behind and nearly free, white; stem cylindrical, stuffed or hollow, white; spores white, subglobose, .0003 to .00035 in. broad; flesh white, taste mild.

Pileus 3 to 5 in. broad, stem 1 to 2.5 in. long, 6 to 12 lines thick.

Rocky ground in thin woods. Day. July and Aug.

This plant approaches *R. æruginea* so closely, that it may be a question whether it is a distinct species or a mere variety. It differs in the breaking up of the cuticle and in having the disk generally paler instead of darker than the rest of the pileus. The cuticle usually remains entire on the disk, which is of a dingy yellowish hue, while toward the margin the color is greenish or smoky-green, though in some instances it also is yellowish or dirty straw-color. The greenish specimens so closely resemble *R. virescens*, that in a dry time they might easily be confused with that species. The viscid pileus and its striate margin will distinguish it. The lamellæ are rather narrow anteriorly.

Boletus subaureus, *n. sp.*

Pileus convex, becoming nearly plane, soft, viscose, pale-yellow or golden-yellow, sometimes mottled with darker spots or tufts of hairs, the young margin adorned with a slight grayish tomentum, flesh pale-yellow; tubes subdecurrent, small, angular or subrotund, at first yellow then ochraceous-yellow; stem cylindrical, solid, glandular-punctate, yellow without and within; spores oblong-elliptical, .00035 to .0004 in. long; .00016 broad.

Pileus 2 to 4 in. broad, stem 1.5 to 2.5 in. long, 5 to 6 lines thick.

Woods. Day. July.

This species is intermediate between *B. flavidus* and *B. granulatus*. It has the stout stem, thick pileus and general aspect of the latter, but the yellow color of the stem and young tubes connect it more closely with the former.

Boletus flavipes, *n. sp.*

Pileus convex or nearly plane, glabrous, dull-red, inclining to chestnut color; tubes nearly plane or convex, small, subrotund, pale-yellow, becoming a little darker with age; stem cylindrical, solid, furfuraceous, pale-yellow; spores oblong-fusiform, olivaceous, .0005 to .0006 in. long, .00016 to .0002 in. broad.

Pileus 1.5 to 2.5 in. broad, stem 2 to 3 in. long; 4 to 6 lines thick.

Woods. Caroga and South Ballston. July and Aug.

Polyporus confluens, *Fr.*

Pine woods. New Scotland. Sept.

Our specimens are not at all squamulose, and this character is not attributed to the species by all authors. It is probable that it is not uniform in this respect.

Polyporus Schweinitzii, *Fr.*

Pine woods, generally at or near the base of stumps and trees. West Albany. Sept.

P. hispidoides is a dimidiate form of this species, and not a variety of *P. hispidus*.

Hydnum geogenium, *Fr.*

Woods. South Ballston. Aug.

I am not aware that this rare and interesting species has before been noticed in this country. According to Fries, the species is very variable, so much so that some specimens might be referred to the section Pleuropoda, others to Mesopoda, and others still to Apoda, to which the typical form belongs.

Hydnum farinaceum, *Pers.*

Decaying wood of hemlock. Osceola. Aug.

Grandinia granulosa, *Fr.*

Dead bark of alders. Karner. Sept.

A variable species, referred to Thelephora by Albertina and Schweinitz, to Hydnum by Persoon, and to Grandinia by Fries. Our specimens were whitish when fresh, but they become ochraceous or subalutaceous when old and dry. They are also rimose, thus answering to variety *rimosa Pers.*

Corticium puteanum, *Fr.*

Decaying wood in swamps. Guilderland. Sept.

Corticium radiosum, *Fr.*

Decaying wood. Osceola. Aug.

Corticium cinerascens, *Berk.*

Dead branches of oak. Albany. Aug.

Our specimens are resupinate. The hymenium when moist was tuberculose and of a dingy hue; in the dry state it is cinereous and rimose. The spores are elliptical.

Clavaria circinans, *n. sp.*

Stem short, solid, dichotomously or subverticillately branched; branches slightly diverging or nearly parallel, nearly equal in length, the ultimate ones terminating in two or more short acute concolorous ramuli; spores ochraceous.

Plant 1 to 2 in. high, obconic in outline, flat topped, appearing almost as if truncated, pallid or almost whitish in color, generally growing in imperfect circles or curved lines.

Under spruce and balsam trees. Adirondack mountains. Aug

Clavaria gracilis, *Pers.*

Ground in open places, especially under brakes, *Pteris aquilina*. Adirondack mountains.

The typical form has the branches numerous, nearly straight and slender, but forms occur in which they are thicker, more loose and flexuous. Such forms approach *C. Kunzei* in appearance, but they may be distinguished by their pallid stem, more tenacious substance and yellowish spores. The plant is slightly fragrant.

Clavaria byssiseda, *Pers.*

Decaying wood twigs and bark in woods. Adirondack mountains. Aug.

Easily known by its small size, pallid color, and abundant white creeping fibrillose mycelium.

Tremella pinicola, *n. sp.*

Pulvinate, gyrose-plicate, somewhat lobed and lacunose, raisin-colored when moist, blackish when dry, filaments slender, branched; spores oblong, curved, colorless, .0005 in. long, .0002 broad.

Dead branches of pine. Day. July. It belongs to the section Cerebrina.

Siphoptychium Casparyi, *Rost.*

Decaying wood. Lake Placid. Adirondack mountains. *G. A. Rex.*

Phyllosticta Mitellæ, *n. sp.*

Spots suborbicular, brown; perithecia minute, .0025 to .003 in. broad, amphigenous, black; spores subglobose, colorless, .0002 to .00025 in. long.

Living leaves of mitre-wort, *Mitella diphylla.* Newburgh. Sept.

Phyllosticta Hamamelidis, *n. sp.*

Spots very large, sometimes occupying nearly half the leaf, irregular, angular, reddish-brown above, paler beneath; perithecia small, .004 in. broad, amphigenous, black; spores broadly elliptical, colorless, .0005 to .0006 in. long, .00035 to .0004 broad, often containing a single large nucleus.

Living leaves of witch-hazel, *Hamamelis Virginiana.* Day. July.

Phoma aquilina, *S. & P.*

Dead stems of ferns. West Albany. May.

Phoma Strobiligena, *Desm.*

Scales of pine cones. Albany. *G. W. Clinton.* Elizabethtown. May.

Phoma sordida, *Sacc.*

Dead branches of water beech, *Carpinus Americana.* Saugerties. May.

Phoma Phillipsiana, *S. & R.*

Dead branches of alders, *Alnus viridis.* Elizabethtown. May.

The spores in our specimens do not fully agree with the description of the species. They are elliptical or oblong and somewhat variable and irregular, but the differences scarcely seem worthy of specific distinction.

Phoma Majanthemi, *n. sp.*

Perithecia minute, .007 to .010 in. broad, amphigenous, subglobose, prominent, black; spores oblong, subtruncate at each end, colorless, 00025 to .0003 in. long, .00012 broad. Dead leaves of two-leaved Solomon's seal, *Majanthemum bifolium*. Elizabethtown. May.

Phoma Clintonii, *n. sp.*

Perithecia numerous, sunk in the wood, oblong or subhysteriiform, black; spores oblong-ovate, colorless, .0004 to .00045 in. long, .00016 broad, supported on slender basidia.

Decorticated wood of horse-chestnut, *Æsculus Hippocastanum*. Albany. May. *Clinton*.

This is quite distinct from *P. diplodioides*, both in habit, form of perithecia and character of the spores.

Dendrophoma Cephalanthi, *n. sp.*

Perithecia small, .02 to .025 in. broad, erumpent, depressed, with a papillate ostiolum, black; spores abundant, straight or slightly curved, colorless, .00016 to .0002 in. long; basidia very slender, branched above, .001 to .0015 in. long.

Dead branches of button bush, *Cephalanthus occidentalis*. Karner. Oct.

Dendrophoma Tiliæ, *n. sp.*

Perithecia minute, scattered, erumpent, black, white within; spores oblong or subcylindrical, obtuse, colorless, .0006 to .001 in. long, .0003 to .00035 broad; basidia filiform, branched.

Dead branches of bass wood, *Tilia Americana*. Quaker Street. June.

Vermicularia uncinata, *B. & C.*

Dead stems of *Desmodium nudiflorum*. Sandlake. June.

Cytispora intermedia, *Sacc.*

Dead branches of oak, *Quercus rubra*. Albany. Apr.

Sphæropsis tiliacea, *n. sp.*

Perithecia at first covered, then erumpent, subglobose or depressed, numerous, minute, .007 to .010 in. broad, opening by a minute pore, black; spores oblong or subelliptical, at first pale, then colored, .0007 to .0009 in. long, .0005 to .0006 broad; sporophores scarcely as long as the spores.

Dead bark of basswood, *Tilia Americana*. Albany. Apr.

Sphæropsis Linderæ, *n. sp.*

Perithecia numerous, minute, .005 to .010 in. broad, erumpent, black, white within; spores obvate or elliptical, at first pale, then colored, .0008 to .0011 in. long, .0005 to .0006 broad supported on sporophores shorter than themselves.

Dead branches of spice bush, *Lindera benzoin*. Albany. May.

Very near the preceding species.

Sphæropsis Juniperi, *n. sp.*

Perithecia gregarious, numerous, small, .008 to .011 in. broad, erumpent, black; spores oblong or elliptical, 0008 to .00095 in. long, .00045 to .0005 broad.

Dead bark of red cedar, *Juniperus Virginiana.* West Albany May.

Sphæropsis pallida, *n. sp.*

Perithecia cæspitose, erumpent, .011 to .013 in. broad, black; spores subglobose, slightly colored, .0007 to .0008 in. long, .00065 to .00075 broad, containing one to three nuclei; sporophores very short.

Dead branches of sumac, *Rhus typhina.* Saugerties. May.

This fungus has the general appearance of *S. Sumachi,* but the perithecia are usually smaller than in that species, and the spores paler and of a different shape, being nearly globose.

Sphæropsis Sphærospora, *n. sp.*

Perithecia numerous, minute, .006 to .007 in. broad, subglobose or depressed, at first covered by the epidermis, black, opening by a minute pore; spores globose or subovate, slightly colored, .0004 to .0005 in. long, usually containing a single large nucleus.

Dead stems of silk weed, *Asclepias cornuti.* Sandlake. June.

Sphæropsis maculans, *n. sp.*

Perithecia immersed in the matrix, .016 to .02 in. broad, black, with a papillate ostiolum; spores elliptical, colored, .0004 to .0005 in. long, .0002 to .00025 broad.

Dead decorticated branches. Adirondack mountains. May.

This is a peculiar and well-marked species. The perithecia are immersed in the wood which is stained black just about each perithecium. The black ostiolum projects slightly above the surface of the wood.

Coniothyrium Staphyleæ, *n. sp.*

Perithecia minute, .007 to .011 in. broad, subglobose, slightly prominent, at first covered by the epidermis th [illegible] umpent, black; spores very minute, elliptical, slightly colored, .00016 in. long, .00012 broad.

Dead whitened twigs of *Staphylea trifolia.* Saugerties. May.

Septoria Osmorrhizæ, *n. sp.*

Spots small, subangular or irregular, brown; perithecia epiphyllous, .004 to .005 in. broad, slightly prominent, centrally depressed, reddish-brown or amber-colored; spores filiform, more or less curved or flexuous, colorless, .002 to .0028 in. long, .00016 broad, oozing out and forming a whitish tendril. Living leaves of sweet cicely, *Osmorrhiza longistylis.* Schoharie. July.

Septoria oleandrina, *Sacc.*

Living or languishing leaves of oleander, *Nerium Oleander.* Sandlake. June.

Septoria lineolata, *S. & S.*

Dead leaves of sedges, *Carex varia.* Elizabethtown. May.

Septoria graminum, *Desm.*

Living leaves of black-fruited mountain rice, *Oryzopsis melanocarpa.* Day. July.

Rhabdospora pleosporoides, *Sacc.*

Dead stems of Scotch thistle, *Onopordon acanthium*. Albany. May. *Clinton*.

Rhabdospora Xanthii, *n. sp.*

Perithecia numerous, small, .011 to .014 in. broad, depressed, covered by the thin browned or blackened epidermis which is pierced by the ostiola; spores filiform, curved, colorless, .0008 to .0012 in. long, .00006 broad.

Dead stems of cocklebur, *Xanthium strumarium*. Albany and North Greenbush. Apr.

The tissues surrounding the perithecia are often colored in such a way as to impart a smoky-brown hue to the affected patches.

Phlyctæna septorioides, *Sacc.*

Dead stems of poke weed, *Phytolacca decandra*. Albany. Nov.

Phlyctæna complanata *Sacc.*

Dead stems of Polygonum. North Greenbush. May.

Zythia ovata, *n. sp.*

Perithecia ovate, reddish or flesh colored when fresh and moist, black when dry, single or two to three in a cluster, nearly superficial, .025 to .030 in. long, .017 to .018 broad; spores oblong, colorless, .0003 in. long, .00012 broad; basidia densely and fasciculately branched.

Dead bark of poplar. South Ballston. Sept.

Diplodina Ellisii, *Sacc.*

Dead stems of goose foot, *Chenopodium album*. North Greenbush. Apr.

This was originally *Diplodia hyalospora*, C. & E. The perithecia are .008 to .01 broad. The spores are at first simple, then uniseptate. They are .0007 to .001 long, .00035 to .0004 broad.

Thyrsidium Micheneri, *Sacc.*

Dead branches of water beech, *Carpinus Americana*. West Troy. May.

This is *Cheirospora Micheneri*, B. & C.

Marsonia Martini, *S. & E.*

Living leaves of *Quercus prinoides*. Karner. Sept.

Coryneum compactum, *B. & Br.*

Dead branches of red birch, *Betula nigra*. Saugerties. May.

Pestalozzia Saccardoi, *Speg.*

Dead leaves of oak, *Quercus alba*. Day. July. The spots on the leaves are less black and the colored cells of the spores are more numerous in this species than in *P. monochæte*, which also inhabits oak leaves.

Pestalozzia consocia, *n. sp.*

Spots very large, sometimes occupying nearly half the leaf, irregular or angular, reddish-brown above, paler beneath ; acervuli amphigenous, minute, punctiform, black ; spores oblong-fusiform, .0012 to .0014 in. long, .0003 broad, five septate, with four colored cells, .0009 to .0011 in. long and a single bristle at the apex.

Living leaves of witch-hazel, *Hamamelis Virginiana.* Day. July.

The species is associated with and occupies the same spots as *Phyllosticta Hamamelidis.* It may be a question as to which species causes the spots, though they are probably due to the Phyllosticta.

Pestalozzia ? campsosperma, *n. sp.*

Acervuli hypophyllous, minutely tufted ; spores fusiform, curved, triseptate, .0008 to .0012 in. long, .00028 to .00032 in. broad, with two colored cells .0005 in. long, the apical cell hyaline, conical, ending in an acuminate point, the lower cell tapering into the short pedicel.

Dead leaves of balsam fir, *Abies balsamea.* Adirondack mountains. June.

This is a singular species. I have seen no terminal cilia and am not able to say whether they are entirely wanting or whether they are early deciduous. The characters otherwise are so exactly like those of Pestalozzia that I have, with some doubt, referred our plant to that genus. The curved spores are very characteristic of the species.

Uredo Ledi, *A. & S.*

Living leaves of Labrador tea, *Ledum latifolium.* Bergen swamp, Genesee county, and Sandlake, Rensselaer county. June.

The authors of this species remark that the leaves attacked by the fungus appear broader than usual. This peculiarity was very perceptible in the Bergen swamp specimens, the usually involute margins of the leaves being almost wholly expanded or unrolled. The spores, which occur on the lower surface of the leaf and are partly concealed by its tomentum, are .0008 to .0009 in. broad. Their smaller size, different place of occurrence, and the different color of the spots readily distinguish this species from *Uredo ledicola.*

Puccinia hastata, *Cke.*

Living leaves of *Viola primulæfolia.* Riverhead. Sept. The typical form was discovered in Maine on leaves of *Viola hastata.* In our specimens teleutospores and stylospores occur on the same leaf and sometimes in the same sorus.

Gymnosporangium clavariæforme, *D. C.*

Branches of Juniper, *Juniperus communis.* Elizabethtown. May.

This was in some instances associated with *Gymnosporangium clavipes,* the two occurring near each other on the same branch. The species is a rare one in this country, and has hitherto been reported from Maine only.

Periconia pycnospora, *Fres.*

Dead stems of melilot. Bethlehem. Apr.

Sporodinia grandis, *Lk.*

Decaying *Agaricus abortivus.* Osceola. Aug.

Illosporium humigenum, *Pk. & Sacc.*

Tufts subglobose or pulvinate, rather compact, often botryoidal by confluence, sordid red, grayish or subcinereous; spores globose, at first three or more aggregated, then free, colorless, .0002 to .00028 in. broad; basidia none or obsolete.

Damp ground, horse dung, etc. Lebanon Springs. *Clinton.* Copake. Aug. and Sept.

Monilia Peckiana, *Sacc.*

Petioles of dwarf blueberry, *Vaccinium Pennsylvanicum.* Cobble Hill, near Elizabethtown. May.

This is a very destructive fungus. The leaves, of which the petioles are attacked, soon wither, turn brown and die. The destruction of the leaf tissues progresses from the base toward the apex as if destroyed by the advancing mycelium. But the strings of spores, so far as I have observed, are produced on the petioles only. The spores vary very much in size, ranging from .0005 to .0012 in. long, and from .0005 to .0009 broad. They are globose or subelliptical and usually have a slight prominence or apiculus at one or both ends.

Variety *angustior* Sacc. Young fruit of choke cherry, *Prunus Virginiana.* Schoharie. July. This differs from the typical form not only in its host plant and place of development, but also in the size of the spores. These are subglobose and .0004 to .0005 in. long. These differences seem to me to indicate a difference of species, but Prof. Saccardo regards this fungus as a mere variety of the former. It is very destructive to the young cherries. In some instances nearly all the cherries in a raceme were affected by it. Those attacked were smaller than the healthy ones. They were of a brownish or grayish-brown hue, and more or less frosted by the fungus. Should this parasite ever escape from its native host plant and attack our cultivated cherries, it might become a very annoying and destructive pest.

Ramularia Geranii, *Fckl.*

Living or languishing leaves of wild geranium, *Geranium maculatum.* Schoharie. July.

Saprolegnia ferax, *Kutz.*

On fishes in an aquarium. Albany. Also in an artificial fish pond. Sandlake. It is sometimes very destructive to fish.

Geoglossum viscosum, *Pers.*

Ground under brakes, *Pteris aquilina.* Adirondack mountains. Aug. This may be distinguished by its triseptate spores from *G. Peckianum,* which it much resembles.

Leotia mercida, *Pers.*

Swampy places. Delmar and Karner. Sept.

Godronia Cassandræ, *n. sp.*

Receptacle small, .02 to 03. in. broad, sessile or nearly so, depressed, urceolate, tawny-brown, the hymenium whitish or livid when moist, darker when dry, the narrow mouth entire or slightly dentate-lacerate, almost closed when dry; asci cylindrical, .0045 to .005 in. long, .0003 to .0004 broad; spores filiform, nearly straight, .002 to .003 in. long; paraphyses filiform, numerous.

Dead branches of leather leaf, *Cassandra calyculata.* Karner. Aug.

Tympanis saligna, *Tode.*

Dead branches of willow, *Salix purpurea.* West Albany. Apr. The specimens are without fruit and to this extent doubtful.

Stictis Saccardoi, *Rehm.*

Dead stems of scouring rush, *Equisetum hyemale.* Delmar. Sept.

Lichenopsis sphæroboloidea, *Schw.*

Dead stems of Cornus. Elizabethtown. May.

Ascomyces extensus, *Pk.*

Spots large, irregular, brown, usually somewhat convex above and concave below, most frequently occurring at the apical end of the leaf or of its lobes; asci hypophyllous, cylindrical, obtuse or subtruncate, .002 to .0025 in. long, .0009 to .0011 broad; spores globose or broadly elliptical, variable in size, .00016 to .0003 in. long, .00016 to .00025 broad.

Living leaves of the over-cup oak, *Quercus macrocarpa.* Plattsburgh. July. *Gen. J. M. Robertson.*

The specimens were first sent by Gen. Robertson to the editors of the *Country Gentleman,* with the information that nearly every leaf on the tree was affected in a manner similar to those sent. In these the dead spots occupied one-fourth to one-half the entire leaf. They number from one to three spots on a leaf. It is very evident that the vital functions of leaves so extensively affected must be much impaired, and that the health and vigor of the tree must be correspondingly weakened. It was also stated that many other oaks in that region were similarly affected. The species is distinct from *A. Quercus* Cke., in the character of the spots and also of the spores.

Microsphæria Cæanothi, (*Schw.*).

Living leaves of New Jersey tea, *Ceanothus Americanus.* New Scotland. Oct.

This appears to be the fungus described by Schweinitz as *Erysiphe Ceanothi,* although the perithecia in our specimens can scarcely be described as "immersed" and the species is a Microsphæria, not an Erysiphe. It is closely related to *M. penicillata,* having about four eight-spored asci in a perithecium, but it differs from that fungus in occurring only on the upper surface of the leaves. It sometimes attacks the immature fruit which it covers with a more dense white mycelium.

Valsa rhoophila, *C. & E.*

Dead branches of poison sumach, *Rhus venenata.* Guilderland. May.

Valsa glandulosa, *Cke.*

Dead branches of *Ailanthus glandulosus.* Cold Spring. June.

Valsa cenisia, *De Not.*

Dead branches of red cedar, *Juniperus Virginiana.* West Albany. May.

Rosellinia ambigua, *Sacc.*

Decorticated stems of red-berried elder, *Sambucus pubens.* Adirondack mountains and Sandlake. June.

The species belongs to the section Coniochæta. The perithecia in some of our specimens are so densely crowded that they form a continuous black stratum.

Rosellinia mastoidea, *Sacc.*

Fallen decorticated branches of willow, *Salix purpurea.* West Albany. Apr.

Hypoxylon semiimmersum, *Nits.*

Decaying wood. Adirondack mountains. June.

Læstadia Æsculi, *n. sp.*

Perithecia small, .007 in. broad, lenticular, covered by the epidermis, erumpent, opening by a minute pore, black: asci subclavate; spores crowded, subelliptical, colorless, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Fallen petioles of horse chestnut, *Æsculus Hippocastanum.* Albany. May. *Clinton.*

Sphærella maculosa, *Sacc.*

Fallen leaves of poplar, *Populus tremuloides.* Adirondack mountains. June.

This species resembles *S. orbicularis*, but the perithecia are smaller and hypophyllous, and the spores are larger and distinctly colored.

Sphærella macularis, *Auersw.*

Fallen leaves of poplar. Adirondack mountains. June.

In this species the spots are small and angular, the perithecia are amphigenous and the spores are smaller than in *S. maculosa.*

Sphærella Lycopodii, *n. sp.*

Perithecia minute, .004 in. broad, blackish: asci oblong or subcylindrical, often slightly narrowed toward the apex, .0012 to .0016 in. long, .0004 broad; spores oblong, .00045 to .0005 in long, .00016 to .0002 broad.

Scales of dead spikes of club moss, *Lycopodium clavatum.* Adirondack mountains. June.

This differs from *S. lycopodina,* in its place of growth and in its smaller asci and spores.

Diaporthe Carpini, *Fckl.*

Dead branches of water beech, *Carpinus Americana.* Albany. Apr.

Diaporthe Robergeana, *Niessl.*

Dead branches of bladder-nut, *Staphylea trifolia.* Albany. Apr.

Diaporthe galericulata, *Sacc.*

Dead branches of beech, *Fagus sylvatica.* Sandlake. June.

Diaporthe Neilliæ, *n. sp.*

Perithecia numerous, .02 to .024 in. broad, loosely and irregularly aggregated in extensive patches, immersed in the interior bark and often forming a slight depression in the wood, covered by the epidermis which is pierced by the black conical or rostellate ostiolum, the base often concave beneath ; asci subcylindrical, the sporiferous part about .0025 in. long, .0003 to. 0004 broad; spores crowded or biseriate, oblong or subfusiform, slightly constricted at the septum, two or four nucleate, .00055 to .00065 in. long, .0002 to .00025 broad.

Dead branches of nine bark, *Neillia opulifolia.* Albany. Apr.

The surface of the affected branch is rough to the touch by reason of the projecting ostiola. The perithecia are sometimes valsoidly clustered.

Diaporthe marginalis, *n. sp.*

Pustules numerous, covered by the epidermis which is somewhat elevated ; perithecia valsoid, 8 to 15 in a pustule, nestling in the inner bark with no circumscribing line, the ostiola slightly emergent, black, usually surrounding the margin of the whitish pulveraceous erumpent disk; asci subcylindrical, .0025 to .003 in. long, .0004 to .0005 broad; spores crowded or biseriate, uniseptate, obscurely apiculate at each end, .0008 to 0009 in long, .0002 to .00025 broad.

Dead branches of *Alnus viridis.* Elizabethtown. May.

In its external appearance this fungus resembles *Valsa ambiens.* In the larger pustules the ostiola form a marginal circle about the disk as in that species, but in the smaller ones they sometimes emerge centrally and obliterate the disk.

Diaporthe sparsa, *n. sp.*

Perithecia few, minute, scattered, immersed in the wood whose surface is blackened; asci clavate or subcylindrical, .003 to .0035 in. long, .0003 to .0004 broad; spores crowded, oblong or subfusiform, colorless, constricted at the septum, four-nucleate, .0008 to .0012 in. long, .0002 to .00028 broad. Dead branches of *Rhus Toxicodendron.* Saugerties. May.

Didymosphæria bacchans, *Pass.*

Dead branches of grapevines. Saugerties. May.

Leptosphæria Typharum, *Karst.*

Dead leaves of *Typha latifolia.* Adirondack mountains. June.

Leptosphæria Kalmiæ, *n. sp.*

Perithecia subcæspitose, erumpent, .014 to .018 in. broad, subhemisphærical, thick, black, the ostiola pertuse or slightly papillate; asci cylindrical, .004 to .005 in. long, .0003 to .00035 broad; spores uniseriate, oblong or subfusiform, triseptate, sometimes slightly constricted at the middle septum, colored, .00065 to .0008 in. long, .00025 to .0003 broad; paraphyses filiform.

Dead stems of sheep laurel, *Kalmia angustifolia*. Adirondack mountains. June.

Generally there are two to four perithecia in a cluster, but sometimes they are single and occasionally laterally compressed. The epidermis usually ruptures longitudinally. The species is related to *Leptosphæria vagabunda.*

Zignoella diaphana, *Sacc.*

Decaying wood. Adirondack mountains. June.

Our specimens have the perithecia depressed and smaller than in the type.

Pyrenophora relicina, *Sacc.*

Dead leaves of quack grass, *Triticum repens.* West Albany and Helderberg mountains. May.

Cryptospora Tiliæ, *Tul.*

Dead branches of basswood, *Tilia Americana.* Helderberg mountains. May.

Hypocrea fungicola, *Karst.*

Decaying Polypŏrus. Caroga. July. The species was formerly confused with *H. citrina,* which it very closely resembles.

Pleonectria Berolinensis, *Sacc.*

Dead stems of currant, *Ribes rubrum.* Albany. April.

(D.)

REMARKS AND OBSERVATIONS.

Ranunculus repens, *L.*

A beautiful double flowered Ranunculus was found growing in a wet place by the road side in the village of Bergen. Its creeping stems and other characters connect it with *R. repens*, and especially with that form of it which was described by Dr. Beck as *R. Clintonii*. Whether the plant with its double flowers was a spontaneous development or whether it had escaped from cultivation in some garden is not known.

Actæa alba, *Bigel.*

A form with long slender pedicels was found at Karner growing with *A. rubra.* The latter sometimes has thick pedicels, so that the color of the fruit remains as the most reliable character for distinguishing these species.

Barbarea vulgaris, *R. Br.*

This plant is very abundant on the low lands between Utica and Rome. It takes possession of pastures and cleared lands and rivals the common yellow buttercups in profusion. Its vigorous and abundant growth give it the appearance of an introduced plant and make it worthy of classification among our noxious weeds. Variety *arcuata* occurs along shaded streams in Sandlake.

Arabis lyrata, *L.*

The usual habitat of this plant is on rocks and precipices, but fine specimens were found growing in a sandy field near Albany.

Camelina sativa, *L.*

Abundant in wheat fields near Bergen. June. An introduced and troublesome weed.

Viola cucullata, *Ait.*

A peculiar form of this very variable species grows in Bergen swamp. The leaves are very small, about half an inch broad, the peduncles are elongated and the lateral petals are whitish at the base.

Prunus serotina, *Ehrh.*

The black cherry is very abundant about Southfield, Orange county, where it blossoms profusely even when a mere shrub in size. The choke cherry is also common here. It blossoms two or three weeks earlier than the black cherry.

Cephalanthus occidentalis, *L.*

The leaves are usually opposite or ternate, but sometimes there are four in a whorl.

Crantzia lineata, *Nutt.*

Specimens of this rare plant were sent from Wading River by *E. S. Miller*.

Epilobium hirsutum, *L.*

This introduced plant is gradually spreading. It is in North Greenbush, *G. W. Clinton*, and at Dunsback Ferry, near Cohoes. *H. C. Gordinier*.

Petasites palmata, *Gray.*

This rare species has been found in a sphagnous marsh in Sandlake. *Gordinier*. It also occurs sparingly in a marsh near Guilderland Station, in Albany county, but here it is in danger of extermination as the marsh will probably be soon cleared for cultivation.

Senecio aureus, *L.*

Variety *Balsamitæ* was found in dry rocky places at Southfield.

Vaccinium Pennsylvanicum, *Lam.*

The black-fruited form, variety *nigrum*, is not rare in the town of Day, Saratoga county. In one locality on the top of a mountain it was found producing berries of unusual size. Many of them were found by actual measurement to be fully a half inch in diameter. They were sweet and agreeable to the taste and grew in close clusters of three to six berries. This form would be a most desirable one to introduce into cultivation if it can be made to thrive as well in other localities as it does in its native one. The same variety, bearing more abundant though smaller fruit, was found growing in a marsh in the same town. This would indicate its adaptability to a variety of soils.

Clethra alnifolia, *L.*

The sweet pepper bush or white alder is abundant about Spruce pond near Southfield; also on Skunnemunk mountain. In the former locality, a plant of *Leucothoë racemosa* was also observed.

Menyanthes trifoliata, *L.*

Spruce pond near Southfield. The flowers are dimorphous. On some plants the stamens are longer than the pistils, on others shorter.

Apocynum androsæmifolium, *L.*

There are two forms of our common dogbane, in one of which the flowers are nearly twice as large as in the other.

Celtis occidentalis, *L.*

Near Saugerties. The hackberry is not rare in the lower part of the Hudson river valley, but northward and westward it is seldom found. I am informed that a tree of this species growing in the Mohawk valley, near Sprakers, is such a novelty that it has received from the inhabitants the name of "the unknown tree."

Nyssa multiflora, *Wang.*

Abundant on Skunnemunk mountain where it forms a tall tree and has a trunk twelve inches or more in diameter at the base.

Betula nigra, *L.*

The red birch was admitted into the New York Flora by Dr. Torrey, on the authority of Dr. J. Carey, who gave Saugerties as its locality. No specimens were placed in the Herbarium. Desiring New York specimens, I visited Saugerties and found several trees growing along the banks of the Æsopus river south of Saugerties. The species is easily known by its rough bark, curved branches and long drooping branchlets. The bark of young trees is smooth and whitish or reddish-white and such trees might easily be mistaken for the paper birch or poplar leaved white birch.

Alnus viridis, *D. C.*

Plentiful on Cobble hill, also along the road between Elizabethtown and Keene.

Arisæma triphyllum, *Torr.*

The apex of the spadix of the Indian turnip is generally obtuse. A specimen was found near Albany, in which the spadix was abruptly contracted near the top and prolonged into a slender subulate point, thus showing a tendency to approach, in form, the spadix of *A. Dracontium.*

Symplocarpus fœtidus, *Salisb.*

A specimen occurred near West Albany of which the spathe was double, or rather there were two spathes one smaller, partly within the other and facing it. The smaller interior one contained the spadix.

Orontium aquaticum, *L.*

Abundant at Spruce pond, Orange county. The spadix or club is at first greenish, then bright yellow, finally green again. In the yellow or flowering state it is erect and the scape for a short distance below the spadix is a pure white. After flowering the spadix is thrust beneath the surface of the water by the bending of the scape and both it and the upper part of the scape gradually assume their final green color. The flowers are protogynous and their odor is similar to that of chestnut blossoms. The plants sometimes grow among the sphagnum and sedges of the low quaking shores, and then their leaves are erect. The root is so deeply and firmly fixed in its place, that it is exceedingly difficult to obtain an entire plant.

Cypripedium candidum, *Muhl.*

In Bergen swamp the white lady slipper is associated with the larger and smaller yellow lady slippers. This is its only New York locality known to me, and it grieves me to know that it is here sometimes collected unsparingly merely for hand bouquets. By such treatment it is in danger of extermination. Such a rare and beautiful plant should be gathered sparingly and preserved in its native locality as long as possible.

Trillium grandiflorum, *Salisb.*

The variety *variegatum* has again been collected in the Jamesville locality where it presented the same characteristics as last year. Mrs. Goodrich writes that no specimen with sessile leaves had variegated petals. The petioled leaves and petals striped with green are thus far constantly associated. Of some plants transferred to her garden all reproduced the petioled leaves, and the single one which blossomed had its petals marked with green. One plant occurred in which the flower was borne on one stem and the leaves on another, both rising from the same rootstock. Miss Overacker found a monstrosity in which the flower had nine petals and twelve stamens; also another in which all the parts of the flower were in fours, even the ovary being four-celled. Rev. Mr. Beauchamp also found near Baldwinsville a specimen whose flower had six long sepals and eighteen shorter petals. Under proper cultivation this plant would probably produce double flowers and numerous varieties very readily.

Carex sterilis, *Willd.*

The typical form in which the spikes are often all or nearly all staminate is abundant in Bergen swamp. In the eastern part of the State the plants almost uniformly bear pistillate spikes, and an abundance of fruit. *C. sterilis* and *C. flava* are the prevailing species in Bergen swamp. Among the interesting and rare species are *C. gynocrates,* the typical form, and *C. vaginata.*

Agaricus melleus, *Vahl.*

An abortive form of this Agaric sometimes occurs. It resembles the abortive form of *A. abortivus.*

Agaricus serrulatus, *Pers.*

This species is quite variable. An Agaric was found in the Adirondack wilderness which I was at first inclined to regard as an undescribed species, but have concluded that it is a variety of *A. serrulatus.* The pileus is grayish or whitish-gray and the stem is destitute of the blackish points which belong to the typical form. It may be distinguished as variety *pallida.*

Lactarius resimus, *Fr.*

The plant which we have referred to this species as variety *regalis* was observed in Day. Its glabrous margin and glabrous stem remain constant. The pileus was obscurely zonate and the stem spotted. It might, at first sight, be mistaken for *L. insulsus,* but the change in the color of the milk would correct such a mistake.

Russula fœtens, *Fr.*

Variety *granulata* has the cuticle of the pileus rough with small granular scales.

Gymnosporangium macropus, *Schw.*

Plentiful on red cedar trees about Highland Mills, Orange county. and also about Schoharie.

Septoria mirabilis, *Pk.*

This should be referred to the genus Glœosporium.

Septoria corylina, *Pk.*

Variety *permaculata* differs from the typical form in having the spots large, brown or reddish-brown with an arid paler center. Living leaves of *Corylus rostrata.* Day.

Cenangium deformatum, *Pk.*

If the genus Cenangium be limited to such species as have simple colorless spores, this species must be transferred to the genus Karschia.

Hypoderma Desmazieri, *Duby.*

Specimen's were found on leaves of pitch pine, *Pinus rigida,* while they were yet on the tree and green at the base. This would indicate that the fungus sometimes attacks and kills the leaves.

Spathularia flavida, *Pers.*

Variety *rugosa* has the club rugose. It was found in the Adirondack region growing in a circle about fifteen feet in diameter. All the plants in the circle had the club or receptacle rugose. Some of the plants were affected by *Hypocrea alutacea.* The stems were quite as velvety as in the form described as *Spathularia velutipes,* C. & F.

Sphærotheca pannosa, *Lev.*

Variety *Ribis* occurs on the stems, fruit and leaves of wild gooseberry, *Ribes cynosbati.* Bergen. June. It forms a dense felty stratum of mycelium, which is white at first but soon becomes brown. In the form on roses the mycelium, so far as I have observed, remains white. I have received from Prof. Scribner specimens of the same variety which were found on gooseberry in Colorado.

Hypoxylon Morsei, *B. & C.*

Dead branches of poison sumach, *Rhus venenata.* Guilderland station. May. If *H. Blakei* be united to this species, which union some advocate, then *H. Morsei* is an inhabitant of alders, willows, poplars and sumach.

Sordaria coprophila, *C. & D.*

In the early and immature condition of this fungus, the perithecia are thinly clothed with a minute cinereous flocculent villosity or tomentum, and the spores are cylindrical flexuous and colorless and very unlike the elliptical colored appendaged spore of the mature state.

Sphæria taxicola, *Pk.*

The spores in this are .0008 to .0009 in. long, .00016 to .0002 broad, triseptate and colorless. Therefore the species should be referred to the genus Metasphæria of the Saccardoian system.

(E.)

NEW YORK SPECIES OF PLEUROTUS, CLAUDOPUS AND CREPIDOTUS.

PLEUROTUS. *Fr.*

Stem eccentric, lateral or none. Spores white.

The species of this genus grow chiefly on decaying wood. A few grow on the ground or are attached to mosses. They are very diverse in size and general appearance. For instance, there is little resemblance between *P. ulmarius* and *P. striatulus,* the one a large species with a stout stem and thick fleshy pileus, the other a very small one with no stem and a thin membranous pileus. Yet both are included by the generic description. By reason of the lateral or eccentric stem and of the tufted mode of growth of some species, the pileus is often very irregular and unsymmetrical. Some of the species are also very variable in color, and among the small, at first resupinate forms, the young plant is often, in appearance, very unlike the reflexed mature plant. These variations make it difficult to accurately describe the species and to satisfactorily identify them from the published descriptions. Some of them, by reviving under the influence of moisture and by the tenacity of their substance, indicate an affinity with the genus Panus and its allies. Some of the larger stout-stemmed species occasionally have the stem nearly or quite central in which case they might be taken for species of Tricholoma, though their lignatile instead of terrestrial habitat would be an indication of their real affinity, but not a wholly réliable one, since some species of Tricholoma grow on wood. By their white spores they are separated from the otherwise similar Claudopodes and Crepidoti. Two species, *P. sapidus* and *P. euosmus* have pale lilac-tinted spores, but these can scarcely justify the removal of these plants to any genus having colored spores, since they would harmonize no better there than here. Indeed there is room for doubt if either of these supposed species is more than a variety of *P. ostreatus*. Several species have valuable esculent qualities. Fries has divided the genus into three sections, which for convenience we have adopted in the arrangement of our New York Pleuroti. He names them respectively, EXCENTRICI, DIMIDIATI and RESUPINATI.

Synopsis of the Species.

Stem eccentric pileus entire or marginate behind........ 1
Stem none or short, pileus sessile or not marginate behind........ 7
1. Lamellæ adnate or emarginate, not decurrent........ 2
1. Lamellæ distinctly decurrent........ 4
2. Lamellæ white........ 3
2. Lamellæ yellow........ *P. sulfureoides.*
3. Odor farinaceous, spores elliptical........ *P. lignatilis.*
3. Odor not farinaceous, spores globose........ *P. ulmarius.*
4. Pileus slightly areolate........ *P. subareolatus.*
4. Pileus not areolate........ 5
5. Spores dull lilac........ *P. sapidus.*
5. Spores white........ 6
6. Lamellæ anastomosing at the base........ *P. ostreatus.*
6. Lamellæ distinct at the base........ *P. salignus.*
7. Pileus never resupinate, generally with a short lateral stem or stem-like base........ 8
7. Pileus at first resupinate, generally sessile........ 11
8. Pileus viscid when young or moist........ *P. serotinus.*
8. Pileus not viscid........ 9
9. Lamellæ gray, subdistant, stem not compressed........ *P. tremulus.*
9. Lamellae white, crowded, stem compressed........ 10
10. Plant growing on the ground........ *P. spathulatus.*
10. Plant growing on decaying wood........ *P. petaloides*
11. Pileus white........ 12
11. Pileus not white........ 13
12. Pileus one inch or more long........ *P. porrigens.*
12. Pileus small, less than one inch long or broad........ *P. septicus.*
13. Lamellæ white or yellowish........ *P. atrocaeruleus.*
13. Lamellæ cinereous, livid-brown or blackish........ 14
14. Pileus even or slightly striate on the margin........ *P. applicatus.*
14. Pileus plicate-striate, black........ *P. niger.*
14. Pileus striate, cinereous or livid-brown........ *P. striatulus.*

Pileus entire or with a thin margin on one side, stem distinct, eccentric or lateral.

Pleurotus ulmarius, *Fr.*

Elm Agaric.

Agaricus ulmarius, Bull.

Pileus fleshy, compact, convex or nearly plane, glabrous, moist, sometimes tinged with reddish, yellowish or brownish hues and marbled with livid spots, becoming darker and shining when old, flesh pure white ; lamellæ broad, emarginate or rounded behind, *adnexed*, moderately close, *white or whitish ;* stem stout, *solid*, straight or curved, glabrous or partly or wholly tomentose, whitish ; spores *globose*, .0002 to .00025 in. broad.

Pileus 3 to 6 in. broad, stem 1 to 3 in. long, 6 to 10 lines thick.

Trunks of elm trees. Albany and Trenton Falls. September to December. Edible.

Variety *acericola*. Plant smaller, cæspitose.

Trunks and roots of maple trees. Adirondack mountains. September.

Variety *populicola*. Plant subcæspitose, stem wholly tomentose. West Albany.

This is one of our largest Pleuroti. It is variable in size and appearance. The stem is often thickened either above or below, and it may be glabrous or entirely tomentose, or only at the base or apex. Sometimes it is longitudinally rimose. On the elms of Albany it usually grows from places where branches have been cut away. It persists as a conspicuous object for many days. In very wet weather the disk is apt to crack either in a radiate or reticulate manner.

Pleurotus sulphureoides, *Pk.*

Pale-yellow Agaric.

Pileus fleshy, rather thin, convex, umbonate, glabrous or slightly squamulose, *pale-yellow ;* lamellæ moderately close, *rather broad*, slightly emarginate or rounded behind, *pale-yellow ;* stem firm, equal, slightly fibrillose, *stuffed or hollow*, generally curved and eccentric, rarely central, slightly mealy or tomentose at the top, yellowish or pallid; spores elliptical, .0003 to .00035 in. long .0002 to .00025 broad.

Pileus 1 to 2 in. broad, stem 1 to 1.5 in. high, 2 to 3 lines thick.

Decaying prostrate trunks. Catskill mountains. October. Rare. This species has not been detected since its discovery. It becomes paler in drying. The minute scales are brown, but sometimes are wanting. I have separated this Agaric from *A. sulphureus* because of its eccentric stem, woody habitat and squamulose pileus.

Pleurotus lignatilis, *Fr.*

Wood-inhabiting Agaric.

Agaricus abscondens, Pk.

Pileus compact, convex, sometimes slightly depressed or umbilicate, flocculose-pruinose or glabrous, *white ;* lamellæ thin, *narrow, crowded*, emarginate or adnate, *white ;* stem unequal, rather slender, curved, stuffed or hollow, whitish, sometimes tomentose at the base; spores *minute, elliptical*, 00016 to 0002 in. long, usually with a shining nucleus; odor distinct, farinaceous.

Pileus 2 to 3 in. broad, stem 1 to 2 in. long, 2 to 4 lines thick.

Decaying wood. Griffins, Delaware county, September.

Our specimens, by their pure white color, emarginate adnexed lamellæ and glabrous stem, did not well agree with the published description of *P. lignatilis,* and they were, therefore, described in the Thirty-first Report as a distinct species. But *P. lignatilis* is very variable according to Fries, and as our plant is scarcely more than a variety of it we have united it thereto.

Pleurotus subareolatus, *Pk.*

Slightly-areolate Agaric.

Pileus compact, convex, *whitish tinged with brownish pink,* usually *cracking in small maculiform areas;* lamellæ rather broad, loose, decurrent, whitish becoming tinged with yellow in drying; stem eccentric, subvertical, short, curved, firm, solid, sometimes compressed, white; spores oblong, .0005 to .0006 in. long, about .0002 broad.

Pileus 3 to 4 in. broad, stem 6 to 12 lines long, 4 to 6 lines thick.

Trunks of elm trees. Bethlehem. October.

This plant has occurred with us but once. It differs from *P. tessulatus* by its strongly decurrent lamellæ which form slightly elevated lines far down on the stem.

Pleurotus sapidus, *Kalchb.*

Sapid Agaric.

Plant generally cæspitose; pileus eccentric or lateral, rarely sessile, irregular, convex or depressed on the disk, glabrous, variable in color, whitish, yellowish, grayish-brown, lilac-brown or smoky-brown, flesh white; lamellæ rather broad, subdistant, decurrent, distinct or anastomosing at the base, whitish; stem firm, solid, straight or curved, white or whitish, often united at the base; spores oblong, *pale lilac*, .00035 to .00045 in. long, .00016 to .0002 broad.

Pileus 2 to 5 in. broad, stem 1 to 2 in. long, 3 to 8 lines thick.

Decaying wood of elm, beech, birch, horse-chestnut, etc., sometimes on buried sticks. Common. June to November. Edible.

This is a very variable species, closely allied to *P. ostreatus,* with which it is sometimes confused, and from which its short-stemmed subsessile forms with anastomosing lamellæ can scarcely be distinguished except by the peculiar color of the spores. These, when caught on white paper, have a dull, pale-lilac hue, inclining to lavender color. If they fall on a dark or brown surface they appear whitish. By reason of the colored spores of this fungus and of *P. euosmus,* W. G. Smith proposed the transfer of these plants to Claudopus, but this arrangement was not adopted by Fries, because their real affinities were evidently with the Pleuroti. He says that the species is so variable that its characters are indicated with difficulty, and that on the same trunk specimens sometimes occur that are white, tawny-brown and umber. In the typical form, the lamellæ are not described as anastomosing, but a form is mentioned in which the stem is reticulated by anastomosing veins. In our plant the lamellæ frequently anastomose at the base, just as in *P. ostreatus.* Its stem, also, is sometimes as short or obsolete as in that species. It occurs both in woods and in open places. It is more abundant in autumn, but occasionally appears as early as June. It is no less valuable than the next species for its edible qualities. A stew made of it is a very good substitute for an oyster stew.

In Hungary, according to Dr. Kalchbrenner, it is not only eagerly sought for food in the woods but is also cultivated in gardens by frequently moistening the elm trunks on which it grows.

In drying, the specimens roll up in an annoying manner, unless kept under pressure. The dried specimens are very liable to the attacks of insects.

Pleurotus ostreatus, *Fr.*

Oyster Agaric. Oyster Mushroom.

Agaricus ostreatus, Jacq. *Agaricus dimidiatus*, Bull.

Pileus fleshy, two to four inches broad, soft, convex or slightly depressed behind, subdimidiate, often cæspitosely imbricated, moist, glabrous, whitish cinereous or brownish, flesh white ; lamellæ broad, decurrent, subdistant, *anastomosing at the base*, white or whitish ; stem, when present, very short, firm, lateral, sometimes strigose-hairy at the base ; spores oblong, *white*, .0003 to .0004 in. long, .00016 broad.

Decaying wood and trunks of trees. June to November. **Edible.**

With us this species is much less frequent than the preceding one. Specimens, nearly white when fresh, but yellowish when dried, were collected on oak trunks in Orange county. The spores were clearly white on white paper, but in other respects the plants might readily be taken for a whitish subsessile form of the preceding species.

Pleurotus salignus, *Fr.*

Willow Agaric.

Agaricus salignus, Abb. d. Schw. *Agaricus brumalis*, Scop.

Pileus fleshy, two to six inches broad, firm, spongy, convex or nearly plane, sometimes depressed and slightly hairy toward the base, nearly dimidiate, horizontal, whitish, dark-cinereous or ochraceous ; lamellæ decurrent, some of them branched, eroded on the edge, *distinct at the base*, whitish ; stem, when present, very short, lateral, tomentose ; spores oblong, .00036 in. long, .00015 broad.

Decaying wood, especially of willows. Sandlake.

I have admitted this species with some hesitation, for our specimens, though apparently belonging to it, are not in good condition and hence doubtful. Fries says it is distinguished from *Panus conchatus* by its soft, not coriaceous, substance, but Gillet characterizes its substance as coriaceous when old.

Pileus definitely lateral, neither margined behind nor at first resupinate, sessile or attached to a very short lateral stem or stem-like base.

Pleurotus serotinus, *Fr.*

Late Agaric.

Agaricus serotinus Schrad. *Agaricus serotinoides*, Pk.

Pileus fleshy, one to three inches broad, compact, convex or nearly plane, *viscid when young and moist*, dimidiate reniform or suborbicular, solitary or cæspitose and imbricated, variously colored, *dingy-yellow, reddish-brown, greenish-brown or olivaceous*, the margin at first involute; lamellæ close, determinate, whitish or yellowish; stem very short, lateral, thick, yellowish beneath and minutely tomentose or squamulose with blackish points; spores *minute, elliptical*, .0002 in. long, .0001 broad.

Dead trunks of deciduous trees. Catskill and Adirondack mountains. Buffalo. *G. W. Clinton.* Autumn.

The late Agaric occurs especially in the hilly and mountainous districts of the State. It rarely makes its appearance before September and is sometimes found as late as December. It varies considerably in color but is easily recognized by its peculiar stem and determinate lamellæ. When viewed from above it appears to be stemless or attached by a mere basal prolongation of the pileus, but the lower surface of this prolongation, being differently colored and definitely limited by the basal termination of the lamellæ, has the appearance of a very short but distinct stem. In our plant the surface of the pileus is sometimes adorned with a minute brown or blackish fibrillose tomentum, which gives it a somewhat punctate or scabrous appearance. I find no notice of this character in the descriptions of the European plant. Such specimens with the lower surface of the stem, merely tomentose, were published in the Twenty-third Report as *Agaricus serotinoides*, but they do not appear to me to be any thing more than a mere form of the species. Sometimes the pileus is distinctly tomentose toward the base.

Pleurotus tremulus. *Fr.*

Tremulous Agaric. Gray Pleurotus.

Agaricus tremulus, Schæff.

Pileus thin, eight to twelve lines broad, obovate or reniform, plane or depressed on the disk, tenacious, glabrous, *livid-gray or grayish-brown* when moist, pale-gray when dry; lamellæ determinate, linear, subdistant, *gray or grayish;* stem marginal, short, distinct, nearly terete, ascending, villose at the base; spores *globose*, .0003 in. broad.

Ground among or attached to mosses. Poughkeepsie. October. *W. R. Gerard.*

The stem in our specimens is lateral, as required by the description and the place assigned to the species in the Friesian arrangement, but in Mycological Illustrations, Pl. 242, it is represented as eccentric.

The stem is sometimes wanting, and then the pileus is attached by fibrils. The species is easily known by its gray color and place of growth. It is apparently very rare with us, having been found in our State but once.

Pleurotus spathulatus.

Spathulate Agaric.

Agaricus spathulatus, Pers. *P. petaloides* v. *spathulatus*, Fr.

Pileus rather thin, one to two inches broad, ascending, *spathulate*, tapering behind into the stem, glabrous, convex or depressed on the disk and there sometimes pubescent, *alutaceous* or *brownish tinged with gray, red or yellow;* lamellæ crowded, linear, decurrent, whitish or yellowish; stem compressed, sometimes channeled above, grayish-tomentose; spores *elliptical,* .0003 in. long, .00016 to .0002 broad; *odor and taste farinaceous.*

Ground. Sandlake. June. Edible.

It grows singly or in tufts and is an inch or more in height. The margin is thin and sometimes striatulate and reflexed. Toward the base the flesh is thicker than the breadth of the lamellæ. The cuticle is tough and separable. The flesh is said by Gillet to be tender and delicate. Persoon describes the disk as spongy-squamulose, but in our specimens it is merely pubescent or tomentose.

The species was united as a variety to *P. petaloides* by Fries, and is described by Gillet under that name, but it seems to me to be sufficiently distinct in its habit, habitat, color and spores to be regarded as a species.

Pleurotus petaloides, *Fr.*

Petal-like Agaric. Petaloid Pleurotus.

Agaricus petaloides, Bull.

Pileus rather thin, eight to twenty lines broad, *cuneate or spathulate,* tapering behind into the short compressed generally villose-tomentose stem, convex or nearly plane, glabrous or with a minute grayish pubescence or tomentum toward the base, sometimes striatulate on the margin when moist, *whitish pale-alutaceous or brownish;* lamellæ crowded, linear, decurrent, whitish or yellowish; spores *minute, globose,* .00012 to .00016 in. broad.

Decaying wood. Buffalo. *G. W. Clinton.* East Worcester, Karner, Catskill and Adirondack mountains. July and August.

This is closely allied to the preceding species, with which it is united by most writers, but the striking difference in the size and shape of the spores indicates that they should be kept as distinct species. With us the petal-like Agaric is much more frequent in its occurrence than the spathulate Agaric.

In shape and general appearance it closely resembles *Crepidotus applanatus,* from which it may be distinguished by its paler lamellæ, smaller white spores and more colored pileus.

Pileus at first resupinate, then reflexed, sessile; lamellæ radiating from an eccentric point.

Pleurotus porrigens, *Fr.*

Prolonged Agaric. Pine Pleurotus.

Agaricus porrigens, Pers.

Pileus rather thin, at first resupinate and suborbicular, then reflexed and prolonged, obovate subelliptical or ear-shaped, often longer than broad, one to three inches long, sessile, *glabrous or villose-tomentose toward the base, pure white,* the margin involute when young, sometimes lobed in large specimens; lamellae *narrow, linear,* thin, *crowded,* sometimes slightly forked or anastomosing at the base, white; spores subglobose, .00025 to .0003 in. broad.

Much decayed wood of pine and hemlock. Buffalo. *G. W. Clinton.* Karner, Catskill and Adirondack mountains. Autumn.

The prolonged Agaric is a fine species, easily known by its pure white color, sessile pileus, and its lamellæ forking or even anastomosing near the base in large specimens.

I find no good characters by which to distinguish *Agaricus nephretus*, Ellis, from this fungus. The spores in this, as well as in *P. striatulus*, *P. niger* and some others, have a slight depression on one side, which makes them broader in one diameter than in the other, and gives them a slightly curved appearance when viewed edgewise.

Pleurotus septicus, *Fr.*

Wood-rotting Agaric. Thin Pleurotus.

Agaricus pubescens, Sow.

Pileus *small*, thin, three to six lines broad, nearly plane, *pubescent or subpulverulent*, sessile or with a short white pubescent stem or stem-like base, *pure white;* lamellæ *rather broad, subdistant*, white; spores subglobose, .00016 to .0002 in. broad.

Decaying wood. Ballston and Adirondack mountains. August.

The clear white color of *P. porrigens* is seen also in this species, which may be easily distinguished by its smaller size, nearly pubescent pileus, subdistant lamellæ and smaller spores.

Pleurotus atrocæruleus, *Fr.*

Dark-blue Agaric. Blue-black Pleurotus.

Agaricus alneus, Schæff.

Pileus fleshy with an *upper brownish gelatinous stratum*, one to two inches broad, convex or nearly plane, reniform dimidiate or obovate, rather tough and flexible, sometimes cæspitosely imbricated, sessile, *villose-tomentose*, dark-blue, blackish, grayish or tawny-brown, flesh soft, whitish; lamellæ rather broad, close, *whitish or yellowish;* spores *elliptical*, .00025 to .0003 in. long, .00016 to .0002 broad.

Decaying trunks and branches of beech, alders and poplars. Karner. September. Buffalo. *G. W. Clinton.*

I have seen no American specimens with the dark-blue or indigo color shown in the published figures of the European plant, but Fries himself says that the pileus is sometimes brown, so that we have no doubt of the specific identity of our plant. The pileus is covered with a grayish or cinereous villosity, which in small specimens forms a thin uniform velvety pubescence, but in large specimens it is more dense and somewhat tufted. Sometimes it is much thinner on the margin than toward the base of the pileus, and in such specimens the real color of the pileus is best seen on the margin. This, in large specimens, is often wavy or somewhat lobed. Small, blackish forms frequently resemble large forms of the next species, but are distinguishable by the paler color of the lamellæ. The plant readily revives on the application of moisture.

Pleurotus atropellitus, *n. sp.*

Black-skinned Agaric.

Pileus very thin, three to eight lines broad, rather tough, flaccid, resupinate or reflexed and lateral, convex or nearly plane, suborbicular obovate or reniform, *villose-tomentose except on the margin*, sessile or prolonged at the base into a short grayish-tomentose stem, *blackish-brown or black*, the tomentum grayish or cinereous, the thin margin slightly striate when moist; lamellæ rather broad, *close, blackish-brown or black*, whitish on the edge; spores *subelliptical;* .0003 to .00035 in. long, .00016 to .0002 broad.

Decaying wood and bark, both of frondose and acerose trees. Fort Edward, *E. C. Howe*. Buffalo. *G. W. Clinton.* Maryland, Helderberg and Adirondack mountains. June to October.

Our plant is closely related to *Pleurotus applicatus*, and it is with some hesitation that I have described it as distinct. But unless the figures and descriptions of that species are erroneous, our fungus is easily distinguished from it by its larger size, darker color and closer blackish lamellæ. *P. applicatus* is described as dark cinereous, cupular, two to three lines broad, villose at the base, sessile or attached by a prolongation on the back and with the lamellæ distant and paler than the pileus. In the American plant these characters do not hold good. The pileus is often clearly attached by a lateral stem or stem-like base and the villosity is found everywhere except on the margin, and the lamellæ are always, so far as I have seen, as dark as or even blacker than the pileus. The plant is flexible and revives on the application of moisture, thus indicating an affinity with the genus Panus. I have seen no description of the spores of *P. applicatus.*

Pleurotus niger, *Schw*

Black Agaric.

Pileus submembranous, two to four lines broad, subresupinate, pulveraceous, *black, plicate on the margin ;* lamellæ broad, radiating, *black*, cinereous on the edge; spores subglobose, .0002 to .00025 in. broad.

Decaying wood. Helderberg mountains, June. This apparently rare fungus has been found in our State but once. The pileus is attached by a tuft of black hairs, and in the largest specimens these extend to the disk and there have a pulverulent appearance. The black color, black villosity and more coarsely striate or plicate margin distinguish this species from the next, which it otherwise closely resembles.

Pleurotus striatulus, *Fr.*

Slightly-striate Agaric.

Agaricus membranaceus, Scop. *Agaricus striato-pellucidus,* Pers.

Pileus membranous, very delicate, two to four lines broad, resupinate or subcupular, then reflexed, sometimes obconic and pendulous, sessile, slightly *striate* when moist, strongly striate or corrugated when dry, flaccid, *glabrous,* scattered or gregarious, persistent, *cinereous or brown ;* lamellæ few, distant, *whitish or cinereous;* spores subglobose, .0002 to .00025 in. broad.

Much decayed wood of pine and hemlock. Fort Edward. *E. C. Howe.* Buffalo. *G. W. Clinton.* Greenbush and Adirondack mountains. July and October.

This is the smallest of our Pleuroti. Like the three preceding species, it revives on the application of moisture, and with them it forms a peculiar group worthy of distinction and separation from the others. The pileus is attached by a grayish villosity. In drying it sometimes becomes nearly black. It is then so small and shriveled that it is easily overlooked.

CLAUDOPUS, *Smith.*

Pileus eccentric, lateral or resupinate. Spores pinkish.

The species of this genus were formerly distributed among the Pleuroti and Crepidoti, which they resemble in all respects except in the color of the spores. The genus at first was made to include species with lilac-colored as well as pink spores, but Professor Fries limited it to species with pink spores. In this sense we have taken it. The spores in some species are even, in others rough or angulated. The stem is either entirely wanting or is very short and inconspicuous, a character indicated by the generic name. The pileus is often resupinate and attached by a dorsal point when young, but it becomes reflexed with age. The species are few and infrequent. All inhabit decaying wood.

Synopsis of the Species.

Pileus yellow	*C. nidulans.*
Pileus white or whitish	1
1 Spores even	*C. variabilis.*
1 Spores angulated	*C. depluens.*
Pileus gray or brown	2
2 Pileus striatulate when moist	*C. Greigensis.*
2 Pileus not striatulate	*C. byssisedus.*

Claudopus nidulans.

Nestling Agaric.

Agaricus nidulans, Pers.

Pileus one to three inches broad, sessile or rarely narrowed behind into a short stem-like base, often imbricated, suborbicular dimidiate or reniform, *tomentose,* somewhat strigose-hairy or squamulose-hairy toward the margin, *yellow or buff color,* the margin at first involute; lamellæ rather broad, moderately close or subdistant, *orange-yellow;* spores even, slightly curved, .00025 to .0003 in. long, about half as broad, delicate pink.

Decaying wood. Sandlake, Catskill and Adirondack mountains. Autumn.

This fungus was placed by Fries among the Pleuroti, and in this he has been followed by most authors. But the spores have a delicate pink color closely resembling that of the young lamellæ of the common mushroom, *Agaricus campestris.* We have, therefore, placed it among the Claudopodes, where Fries himself has suggested it should be placed if removed at all from Pleurotus. Our plant has sometimes been referred to *Panus dorsalis,* Bosc., but with the description of that species it does not well agree. The tawny color, spathulate pileus, paler floccose scales, short lateral stem and decurrent lamellæ ascribed to that species are not well shown by our plant. The substance of the pileus, though rather tenacious and persistent, can scarcely be called coriaceous. The flesh is white or pale yellow. The tomentum of the pileus is often matted in small tufts and intermingled with coarse hairs, especially toward the margin. This gives a squamose or strigose-hairy appearance. The color of the pileus is often paler toward the base than it is on the margin.

Claudopus variabilis, *Fr.*

Variable Agaric.

Agaricus variabilis, Pers. *Agaricus sessilis,* Bull. *Agaricus niveus,* Sow.

Pileus thin, one-half to one inch broad, at first resupinate, then reflexed, sessile or with a very short stem, tomentose, white; lamellæ rather broad, thin, radiating from a lateral or an eccentric point, distant, white becoming pink; spores *even,* elliptical, .00025 to .0003 in. long, about half as broad.

Decaying wood and dead branches. Adirondack mountains. July to October. Buffalo. *G. W. Clinton.*

A small and not common species. The thin pileus is often attached to its place of growth by white tomentose filaments, and the point to which the lamellæ converge is also sometimes tomentose.

Claudopus depluens, *Fr.*

Rainy Agaric.

Agaricus depluens, Batsch.

Pileus thin, one-half to one inch broad, at first resupinate, then reflexed, variable in form, sessile or with a short stem, slightly silky-tomentose especially toward the base, white or whitish, sometimes slightly tinged with pink; lamellæ broad, subdistant, whitish, becoming pink; spores *angulated,* .0004 to .00045 in. long, .0003 broad, usually containing a single large nucleus.

Decaying wood. Catskill mountains, Gansevoort and Sterling. July and August.

This species, like the preceding one, which it closely resembles and from which it is separated by the character of the spores, is very variable. In our specimens the pileus is white, but it is sometimes described as tinged with red or gray. It is also said to grow upon the ground and on mosses, but our specimens grew upon decaying wood. In both these particulars they agree with the figure of the species in Mycological Illustrations.

Claudopus Greigensis, *Pk.*

Greig Agaric.

Pileus very thin, convex, five to ten lines broad, hygrophanous, grayish-cinnamon color and *striatulate* when moist, silky-fibrillose when dry; lamellæ subdistant, *scarcely reaching the stem,* grayish becoming dingy-pink; stem short, about one line long, solid, curved, fibrillose below, with an abundant white radiating mycelium at the base; spores angulated, .00035 to .00045 in. long, .0003 broad, usually containing a single large nucleus.

Much decayed wood. Greig. September.

This species is intermediate between the preceding and the following one, but it is more closely related to the latter, from which it is distinguished by the striatulate pileus and free lamellæ.

Claudopus byssisedus, *Fr.*

Fibril-attached Agaric. Little Claudopus.

Agaricus byssisedus, Pers.

Pileus very thin, four to ten lines broad, at first resupinate, then reflexed, nearly plane, glabrous or merely pruinose with a slight grayish villosity, gray, grayish-brown or brown; lamellæ rather broad, *subdecurrent*, grayish, then tinged with pink; stem short, lateral or eccentric, generally curved, with white radiating byssoid fibrils at the base; spores angulated, .0004 to .00045 in. long, .0003 broad.

Decaying wood. Sterling and Adirondack mountains. August and September.

CREPIDOTUS, *Fr.*

Veil wanting or not manifest. Pileus eccentric, lateral or resupinate. Spores ferruginous.

The Crepidoti correspond in shape and habit to the smaller Pleuroti and the Claudopodes, but they are distinguished from both by the ferruginous color of their spores. These are globose in several species, in others they are elliptical. In some there is a depression on one side which gives them a naviculoid character and causes the spore to appear slighly curved when viewed in a certain position. In consequence of the similarity of several of our species, the character of the spores is of much importance in their identification, and it is unfortunate that European mycologists have so generally neglected to give the spore characters in their descriptions of these fungi. In most of the species the pileus is at first resupinate, but it generally becomes reflexed as it enlarges. It is generally sessile or attached by a mass of white fibrils or tomentum. For this reason it is usually somewhat tomentose or villose about the point of attachment, even in species that are otherwise glabrous. In several species the pileus is moist or hygrophanous and then the thin margin is commonly striatulate. This character is attributed to but one of the dozen or more European species. The large number of New York species is noticeable, and future investigation may show that mere varieties have in some instances been taken for species. Their mode of growth is usually gregarious or somewhat loosely imbricated, in consequence of which the pileus, which in most species is white or yellowish, is often stained by the spores, and then it has a rusty, stained or squalid appearance. The species occur especially on old stumps, prostrate trunks and soft much-decayed wood in damp, shaded places. The name Crepidotus is derived from two Greek words κρεπις, a shoe or slipper, and ους, an ear.

Synopsis of the Species.

Pileus viscid when moist . . . . *C. haerens.*
Pileus not viscid 1
1. Pileus with a distinct stem 2
1. Pileus sessile or with an indistinct stem 3
  2. Stem thickened at the base . . . . *C.* [illegible]
  2. Stem not thickened at the base . . . . *C. stipitatus.*
3. Pileus glabrous or only slightly villose at the base 4
3. Pileus not glabrous 6
  4. Lamellæ narrow and decurrent . . . . *C. applanatus.*
  4. Lamellæ broad, not decurrent 5

5. Pileus white, spores globose........................ *C. malachius.*
5. Pileus yellowish, spores not globose........................ *C. croceitinctus.*
  6. Pileus white, with a white villosity or tomentum.................. 7
  6. Pileus with a colored villosity or tomentum........................ 9
7. Spores elliptical.. 8
7. Spores globose.. *C. putrigena.*
  8. Spores less than .0003 in. long............................ *C. herbarum.*
  8. Spores more than .0003 in. long............................ *C. versutus.*
9. Pileus squamose with a tawny tomentum, spores elliptical.. *C. fulvotomentosus.*
9. Pileus with a yellowish tomentum, spores globose................ *C. dorsalis.*

Crepidotus hærens, *Pk.*

Sticky Agaric.

Pileus thin, four to twelve lines broad, convex, sessile, cuneiform or dimidiate, glabrous, or slightly squamulose, hygrophanous, *viscid* and striatulate on the margin when moist, white or whitish when dry; lamellæ moderately close, narrow, tapering toward each end, subcinereous. then brownish; spores *elliptical,* pale-ferruginous, .0003 in. long, .0002 broad.

Decaying wood. Albany. September.

The elliptical spores and viscid pileus are the distinguishing characters of the species. I know of no other viscid Crepidotus. The pileus is watery white or gray when moist, and white when dry, unless stained by the spores. The margin is very thin and the pileus is attached to the matrix by white filaments. The species is rare, having been observed but once.

Crepidotus haustellaris, *Fr.*

Kidney-shaped Agaric.

Pileus thin, four to ten lines broad, lateral or eccentric, reniform or suborbicular, plane, moist, slightly tomentose when dry, alutaceous or pale-ochraceous; lamellæ broad, subdistant, rounded behind, slightly adnexed or nearly free, pallid, then brownish-cinnamon; stem short, distinct, solid, *bulbous thickened at the base,* whitened with a slight tomentose villosity; spores elliptical, .00035 to .0004 in. long, .0003 broad.

Dead bark of poplars. Thurman, Warren county. October. Rare.

Our specimens differ from the European plant in being smaller and of a paler color. The pileus is also sometimes eccentric, though Fries describes it as "exactly lateral" in the European plant. The dimensions of the spores are taken from our specimens, no spore characters being given in any description of the species to which we have had access. Fries remarks that the species is "small, regular, not cæspitose, especially marked by the subconic stem and almost free lamellæ."

Crepidotus tiliophilus, *Pk.*

Linden-loving Agaric.

Pileus moderately thin, six to twelve lines broad, convex, minutely pulverulent, hygrophanous, watery-brown and striatulate on the margin when moist, dingy-buff when dry; lamellæ rather broad, subdistant, rounded behind, adnexed, colored like the pileus, becoming ferruginous-cinnamon; stem two to four lines long, about one line thick, solid, often curved, pruinose, with a white pubescence at the base; spores subelliptical, brownish-ferruginous, .00025 to .0003 in. long, .00016 to .0002 broad.

Dead trunks and branches of basswood, *Tilia Americana*. East Berne, Albany county. August.

This plant is closely related to the preceding one from which I have separated it because of its larger size, smaller spores and stem not thickened at the base. The individual plants are also sometimes so closely crowded that they appear cæspitose. It is possible that intermediate forms may yet be found that will connect these.

Crepidotus applanatus, *Fr.*

Flattened Agaric.

Pileus very thin, six to twelve lines long, four to ten broad, variable in shape, suborbicular, reniform, cuneiform or spathulate, plane or convex, sometimes slightly depressed behind, sessile or prolonged behind into a short compressed white-tomentose stem-like base, glabrous, hygrophanous, watery-white and striatulate on the margin when moist, white when dry; lamellæ *very narrow, linear, crowded, decurrent*, white, becoming cinnamon; spores globose, .0002 to .00025 in. broad.

Old stumps and much decayed wood. Common. July to September.

It is very variable in the shape of the pileus, but it is commonly either cuneate or spathulate. It closely resembles *Pleurotus petaloides* in this respect as well as in the narrow crowded lamellæ and flattened stem-like base. As in that species and others of this genus, the pileus quickly becomes convolute in drying, unless it is placed under pressure. The striations of the thin margin are often retained in the dried plant. In the 26th Report, our specimens were erroneously referred to *C. nephrodes*, B. & C., from which they differ in the glabrous pileus and crowded linear lamellæ. This last character distinguishes it from all our other Crepidoti. It is gregarious and the pileus is often stained by the spores.

Crepidotus malachius, *B. & C.*

Soft-skinned Agaric.

Pileus thin on the margin, thicker behind, eight to twenty-four lines broad, varying from reniform or suborbicular to cuneate or flabellate, nearly plane, sometimes depressed behind, sessile or prolonged behind into a short white tomentose rudimentary stem or tubercle, glabrous, hygrophanous, *watery-white or grayish-white* and striatulate on the margin when moist, *white* when dry; lamellæ close, *subventricose, rounded behind, white or whitish*, becoming brownish-ferruginous; spores *globose*, .00025 to .0003 in. broad.

Variety *plicatilis*. Pileus coarsely plicate on the margin.

Decaying wood in damp shaded places. Common. June to September.

This resembles the preceding species in color and habit, but it is easily distinguished by its broader pileus and much broader lamellæ rounded behind. In drying, the moisture is retained longer by the thin margin than it is by the thicker disk. The striations are sometimes retained in the dried specimens. By neglecting the spore characters, squalid spore-stained specimens of this species were erroneously referred, in the 24th Report, to *C. mollis*, a species not yet found in our State, though it has been reported from North Carolina, Ohio and Massachusetts.

Crepidotus croceitinctus, *n. sp.*

Saffron-tinted Agaric.

Pileus eight to twelve lines broad, convex or nearly plane, sessile, *glabrous*, sometimes with a white villosity at the base, moist, *yellowish*; lamellæ moderately broad, rounded behind, whitish, becoming *dull saffron-yellow*, then ferruginous; spores ferruginous, *subglobose or broadly elliptical*, .0002 to .00025 in. long.

Decaying wood of poplar and beech. Adirondack mountains and Day, Saratoga county. July.

This species is separated from *C. dorsalis* by its glabrous pileus and its less globose spores, and from *C. crocophyllus* by its larger size, yellow color and the absence of squamules from the pileus. Its spores are of a brighter ferruginous color than in most of our other species.

Crepidotus putrigena, *B. & C.*

Rotten-wood Agaric.

Pileus thin, convex, subreniform, often imbricated, sessile, *slightly tomentose with a more dense white villosity at the base*, moist, striatulate on the margin, whitish or yellowish-white; lamellæ rather close, broad, rounded behind, whitish, becoming ferruginous; spores *globose*, .00025 to .0003 in. broad.

Decaying wood. Brewerton. September.

This species is perhaps too closely allied to *C. malachius*, from which it scarcely differs, except in the villose-tomentose pileus. The lamellæ are three or four times broader than the thickness of the flesh of the pileus.

Crepidotus herbarum, *Pk.*

Herb-inhabiting Agaric.

Pileus thin, two to five lines broad, resupinate, suborbicular, clothed with a white, downy villosity, incurved on the margin when young, sometimes becoming reflexed, sessile, dimidiate and less downy; lamellæ rather narrow, subdistant, radiating from a naked lateral or eccentric point, white, then subferruginous; spores elliptical, .00025 to .0003 in. long, .00014 to .00016 broad.

Dead stems of herbs and dead bark of maple. North Greenbush and Adirondack mountains. August and September.

Crepidotus versutus, *Pk.*

Evasive Agaric.

Pileus four to ten lines broad, at first resupinate, then reflexed, reniform or dimidiate, sessile, white, clothed with a soft, downy or tomentose-villosity, incurved on the margin; lamellæ rather broad, subdistant, rounded behind, radiating from a lateral or eccentric point, whitish, then ferruginous; spores subelliptical, .00035 to .0004 in. long, .00025 to .0003 broad.

Decaying wood, bark, etc., in damp, shaded places. Common. June to October.

This species, and *C. herbarum* appear to run together, and but for the marked difference in the size of their spores I should have united them. The latter is not limited in its habitat to the stems of herbs, and the former sometimes, though rarely, occurs on them. *C. herbarum* is a smaller species with a thinner pileus, nearly always resupinate, and when reflexed, less densely tomentose. Its smaller spores especially distinguish it. Both appear to be closely allied to the European *C. chimonophilus*, which seems to be distinguished by its "oblong elliptical" spores, and its few distant lamellæ attenuated behind.

Crepidotus fulvotomentosus, *Pk.*

Tawny-tomentose Agaric.

Pileus eight to twenty-four lines broad, scattered or gregarious, suborbicular, reniform or dimidiate, sessile or attached by a short, white-villose tubercle or rudimentary stem, hygrophanous, watery-brown and sometimes striatulate on the margin when moist, whitish, yellowish or pale ochraceous when dry, *adorned with small, tawny, hairy or tomentose scales;* lamellæ broad, subventricose, moderately close, rounded behind, radiating from a lateral or eccentric white villose spot, whitish becoming brownish-ferruginous; spores *elliptical* often uninucleate, .0003 to .0004 in. long, .0002 to .00025 broad.

Decaying wood of poplar, maple, etc. Common. June to October.

A pretty species, corresponding in some respects to the European *C. calolepis,* but much larger and with tawny, instead of rufescent scales. The cuticle is separable and is tenacious though it has a hyaline gelatinous appearance. The pileus is subpersistent, and specimens dried in their place of growth are not rare.

Crepidotus dorsalis, *Pk.*

Dorsal Agaric.

Pileus eight to fifteen lines broad, sessile, dimidiate or subreniform, plane or slightly depressed behind, with a decurved substriate margin, slightly *fibrillose-tomentose, reddish-yellow;* lamellæ close, ventricose, rounded behind, radiating from a lateral white villose spot, yellowish, then brownish-ochraceous or subferruginous; spores *globose,* .00025 in. broad.

Decaying wood. Sprakers and Adirondack mountains. June and September. Buffalo. *G. W. Clinton.*

The tomentum of the pileus is more dense and conspicuous about the point of attachment, where it sometimes forms minute tufts or scales.

EXPLANATION OF PLATE 1.

Ascomyces extensus *Peck.*

Fig. 1. A leaf partly killed and discolored by the fungus.
Fig. 2. An ascus containing spores x 400.
Fig. 3. Four spores x 400.

Agaricus (Nolanea) Babingtonii *Blox.*

Fig. 4. One young plant and two mature plants, the two at the left having the pileus moist and striatulate.
Fig. 5. Vertical section of a pileus and the upper part of its stem.
Fig. 6. Transverse section of the stem.
Fig. 7. Three spores x 400.

Pestalozzia consocia *Peck.*

Fig. 8. Part of a leaf with a discolored spot dotted by the fungus.
Fig. 9. Four spores, the one at the left immature x 400.

Pestalozzia campsosperma *Peck.*

Fig. 10. A leaf bearing the fungus.
Fig. 11. Four spores x 400.

Sphærella lycopodii *Peck.*

Fig. 12. Two spikes of the host plant bearing the fungus.
Fig. 13. A slightly magnified scale dotted by the fungus.
Fig. 14. An ascus containing spores x 400.
Fig. 15. Four spores x 400.

Godronia cassandræ *Peck.*

Fig. 16. Part of a branch bearing the fungus.
Fig. 17. A receptacle magnified.
Fig. 18. Vertical section of the same.
Fig. 19. A paraphysis and two asci containing spores x 400.
Fig. 20. Three spores x 400.

Clavaria circinans *Peck.*

Fig. 21. Two plants.
Fig. 22. Five spores x 400.

EXPLANATION OF PLATE 2.

DIAPORTHE MARGINALIS *Peck.*

FIG. 1. Part of a branch bearing the fungus.
FIG. 2. A pustule magnified.
FIG. 3. Vertical section of a magnified pustule, showing three perithecia.
FIG. 4. Two asci containing spores x 400.
FIG. 5. Four spores x 400.

DIAPORTHE NEILLIÆ *Peck.*

FIG. 6. Part of a branch bearing the fungus.
FIG. 7. A perithecium magnified, its rostrum piercing the epidermis.
FIG. 8. Two asci containing spores x 400.
FIG. 9. Four spores x 400.

LEPTOSPHÆRIA KALMIÆ *Peck.*

FIG. 10. Part of a branch bearing the fungus.
FIG. 11. A piece of the bark with two perithecia magnified.
FIG. 12. A perithecium more highly magnified.
FIG. 13. A paraphysis and an ascus containing spores x 400.
FIG. 14. Four spores x 400.

LÆSTADIA ÆSCULI *Peck.*

FIG. 15. Part of a petiole bearing the fungus.
FIG. 16. A perithecium magnified.
FIG. 17. Two asci containing spores x 400.
FIG. 18. Four spores x 400.

MONILIA PECKIANA *S. & V.*

FIG. 19. A leaf partly discolored and its petiole frosted by the fungus.
FIG. 20. Two chains of spores x 400.
FIG. 21. A single spore x 400.

M. PECKIANA var. ANGUSTIOR *S.*

FIG. 22. Part of a raceme with four of its young fruits frosted by the fungus.
FIG. 23. Two chains of spores x 400.
FIG. 24. Two spores x 400.

EXPLANATION OF PLATE 1.

Ascomyces extensus *Peck.*

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Fig. 10. A leaf bearing the fungus.
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Sphærella lycopodii *Peck.*

Fig. 12. Two spikes of the host plant bearing the fungus.
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Fig. 15. Four spores x 400.

Godronia cassandræ *Peck.*

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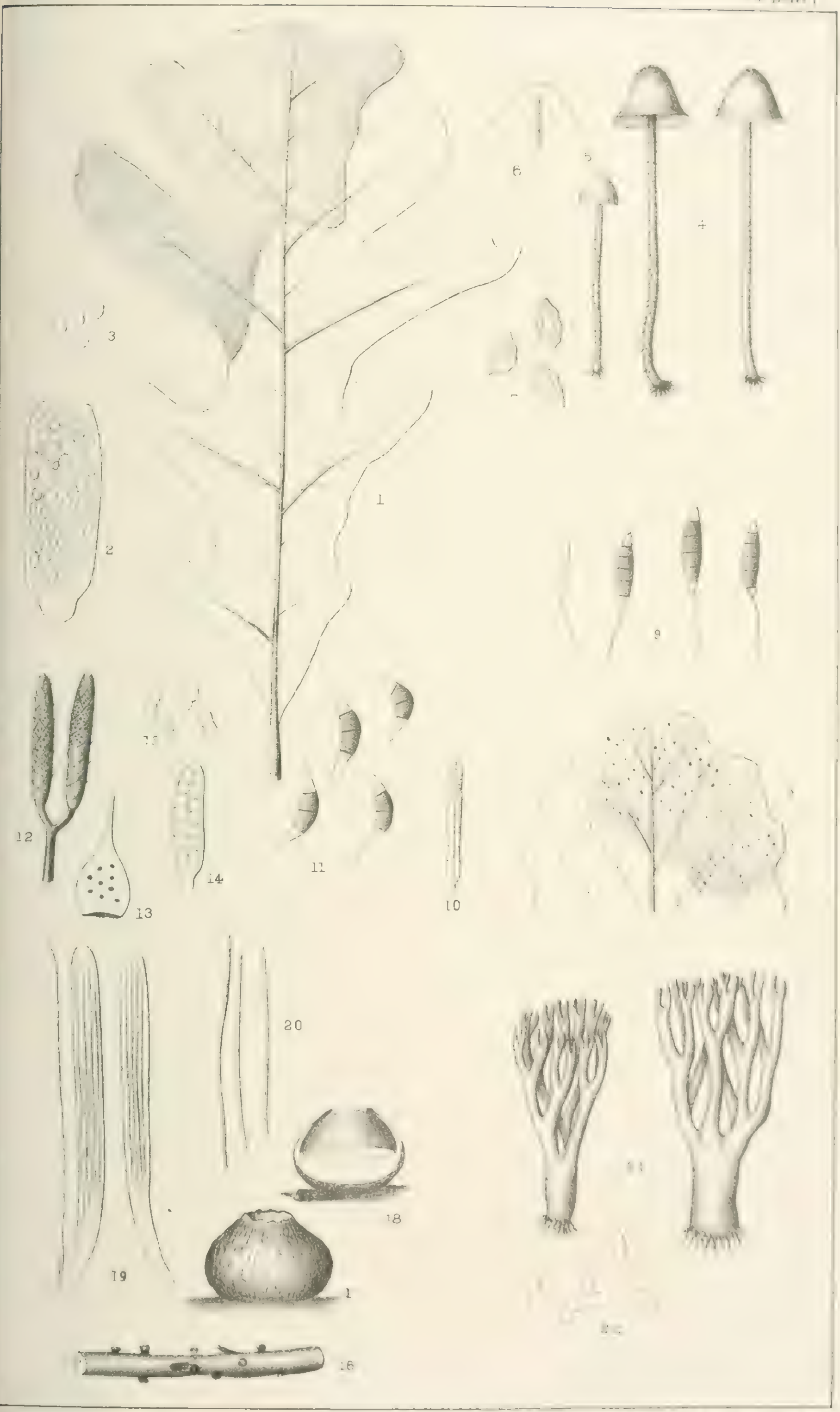
Fig. 17. A receptacle magnified.
Fig. 18. Vertical section of the same.
Fig. 19. A paraphysis and two asci containing spores x 400.
Fig. 20. Three spores x 400.

Clavaria circinans *Peck.*

Fig. 21. Two plants.
Fig. 22. Five spores x 400.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EXPLANATION OF PLATE 2.

DIAPORTHE MARGINALIS *Peck.*

FIG. 1. Part of a branch bearing the fungus.
FIG. 2. A pustule magnified.
FIG. 3. Vertical section of a magnified pustule, showing three perithecia.
FIG. 4. Two asci containing spores x 400.
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DIAPORTHE NEILLIÆ *Peck.*

FIG. 6. Part of a branch bearing the fungus.
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FIG. 8. Two asci containing spores x 400.
FIG. 9. Four spores x 400.

LEPTOSPHÆRIA KALMIÆ *Peck.*

FIG. 10. Part of a branch bearing the fungus.
FIG. 11. A piece of the bark with two perithecia magnified.
FIG. 12. A perithecium more highly magnified.
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LÆSTADIA ÆSCULI *Peck.*

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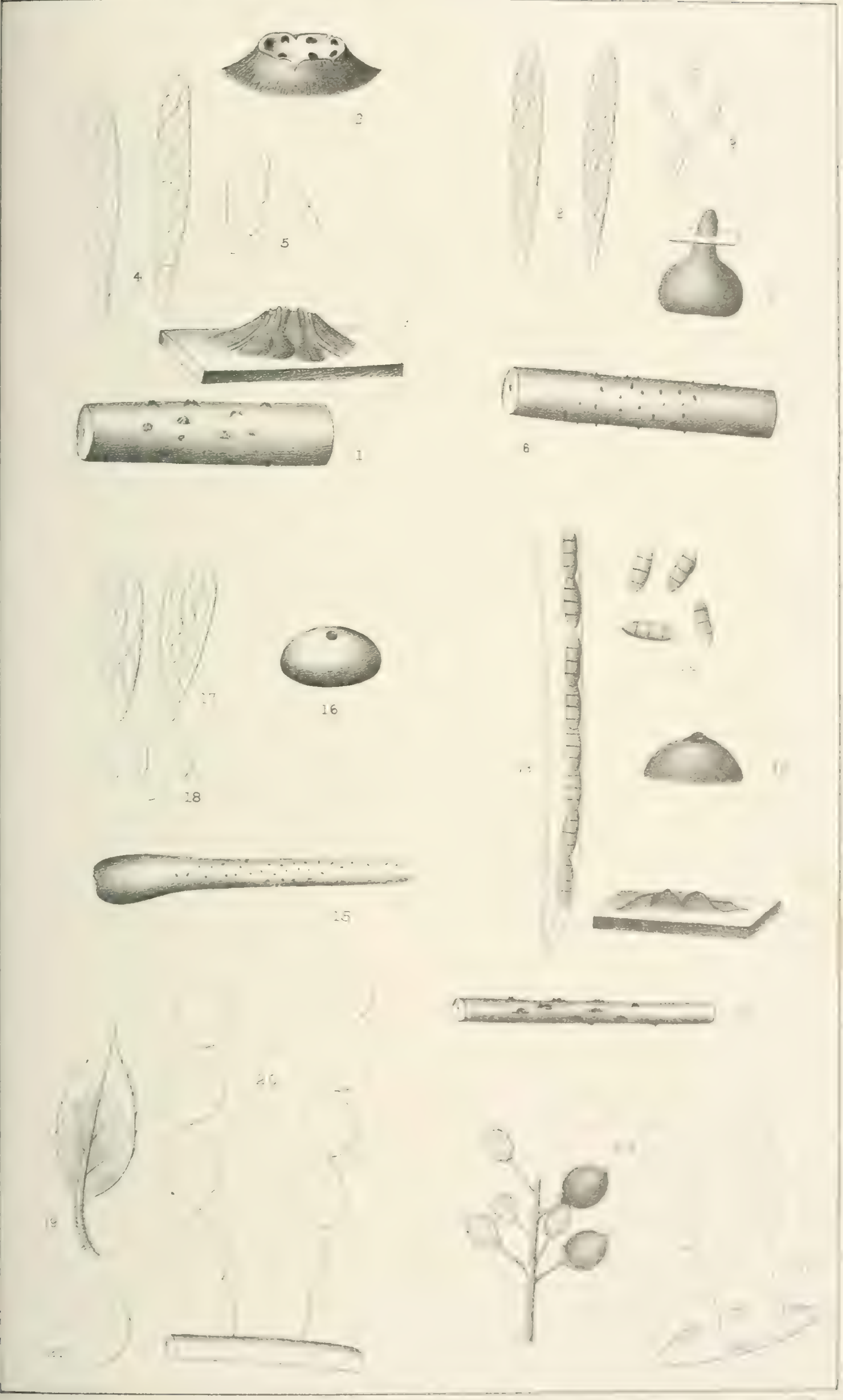
MONILIA PECKIANA *S. & V.*

FIG. 19. A leaf partly discolored and its petiole frosted by the fungus.
FIG. 20. Two chains of spores x 400.
FIG. 21. A single spore x 400.

M. PECKIANA var. ANGUSTIOR *S.*

FIG. 22. Part of a raceme with four of its young fruits frosted by the fungus.
FIG. 23. Two chains of spores x 400.
FIG. 24. Two spores x 400,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REPORT OF THE STATE BOTANIST FOR 1886

BY

CHARLES H. PECK

From the Fortieth Annual Report of the State Museum 1887

ALBANY
THE UNIVERSITY OF THE STATE OF NEW YORK
1920

M143r-O20-300

Reprint of the Report of the State Botanist for 1886; from the Fortieth Annual Report of the State Museum 1887

Through an oversight on the part of the state printers (Weed and Parsons) no edition of the fortieth annual report of the Museum was printed except those necessary for the legislative documents. This report has consequently never been distributed and as it contained many original descriptions of plants by the State Botanist, Dr Charles H. Peck, it is an important work of reference, especially for students of mycology. To supply a constant demand which it has hitherto been impossible to meet the Botanist's report is here reprinted without change and page for page.

REPORT

To the Honorable the Board of Regents of The University of the State of New York:

Gentlemen:— I have the honor to communicate to you the following report:

In prosecuting the work of completing and arranging the State herbarium the past year, specimens of plants of the State have been collected in the counties of Albany, Genesee, Essex, Hamilton, Livingston, Montgomery, Rensselaer, Saratoga, Schoharie, Washington, Wayne and Wyoming.

Specimens of 184 species have been added to the herbarium, of which twelve were contributed by correspondents, and 172 were collected by the Botanist. Of these 106 are new to the herbarium, and with two exceptions are new to our flora. Forty-seven of them are regarded as previously unpublished species. Among the added species are seven flowering plants, one moss and one lichen. The remainder are fungi. A list of the additions accompanies this report and is marked "A."

The number of contributors is twenty-three. Among their contributions are specimens of many extra limital species, not included in the preceding enumeration. These are kept distinct from the herbarium proper, which represents the State flora. A list of the contributors and of their respective contributions is marked "B."

A paper containing notices of species not before reported, together with a record of their respective localities and descriptions of new species, is marked "C."

Notes and observations concerning those not new to our flora will be found in a paper marked "D."

Wishing to obtain good flowering specimens of certain plants which grow upon the summit of Mt Marcy, that locality was visited early in June. Although the snow had not yet entirely disappeared from that high elevation, several of the desired plants were in full bloom. Fine specimens were obtained of the alpine rosebay, *Rhododendron Lapponicum*, the Lapland diapensia, *Diapensia Lapponica*, the hairy fly honeysuckle, *Lonicera cœrulea*, and the dwarf birch, *Betula glandulosa*. The hairy fly honeysuckle and the small cranberry had not before been observed by me on the open summit of the mountain and should be added to the list of plants already published as belonging to that elevated station. July is given in the Manual and also in the State Flora as the time of flowering of the alpine or Lapland rosebay, but here it was flowering finely on the tenth day of June. Several new and interesting species of fungi rewarded my search in that bleak locality. Near the base of the mountain, the few fruited June berry, *Amelanchier Canadensis*, var. *oligocarpa*, enlivened the dark evergreen forest with its few pure white flowers. These are much scattered on the branches, there being only one, two or three in a place. The petals are broadly oval or almost orbicular, and the branches are wide-spreading, straggling and irregular. These features are so unlike the corresponding ones in other varieties of the species, that for the instant they almost compel us to believe that the plant is a distinct species rather than a mere variety. Yet, in less elevated and more open places connecting forms appear. Along Marcy brook, the rare mountain bush cranberry or few flowered viburnum, *Viburnum pauciflorum*, was observed, but it was not yet in flower. At Ausable ponds the large leaved avens, *Geum macrophyllum*, was discovered. This is a notable addition to our flora. It is an inhabitant of the White mountain region of New Hampshire and of the Lake Superior region, whence it extends westward to the Sierra Nevada mountains, and northward to Sitka. This New York station is intermediate between the eastern one and the nearest western one. An interesting form of the northern Clintonia was also discovered at this time. In it, one or two lateral umbels project from the scape at short distances below the terminal umbel of flowers. I find no mention of this form in our botanies. It is apparently due to a very thrifty and vigorous condition of the plant. The number of flowers in an umbel often much exceeds the number ascribed in the descriptions of the botanies.

From time to time reports have reached me that a red-flowered form of the white water-lily, *Nymphaea odorata*, existed in some of the waters of the Adirondack region. As I had never been able to find such a plant myself, these reports were somewhat tantalizing. Knowing that such a lily had been found in Massachusetts, and learning of a definite locality where it was reported to have been seen in the Adirondacks, I determined to test the accuracy of this report, and to add, if possible, a specimen of such a rarity to the herbarium. Mud pond, in which it was said to grow, is a small, boggy water-hole, between Long lake and Tupper's lake. Upon visiting it I found an abundance of the white water-lily. There were a few flowers scattered about, in which the external petals were considerably tinged with red. When these flowers were but partly open, and viewed at a short distance they had a decided pink-red appearance, and might easily be mistaken for the variety in question. But a closer examination invariably revealed white interior petals, though in some instances these were slightly stained with red or pink on the exterior surface near the base. Thus far the occurrence of the real red water-lily in the Adirondack region has not been verified by me; but this half-way approach to it indicates the possibility of its existence there, and raises the hope that it may yet be added to our flora. In this bog hole the bayonet rush, *Juncus militaris*, was found growing plentifully. It is an interesting addition to the indigenous plants of the State. On this trip, groves of larches or tamaracks, *Larix Americana*, in three widely separated localities, were noticed, in which many of the trees were almost defoliated by the ravages of some insect. Among them were many trees already dead, evidently having yielded to the thorough manner in which they had been deprived of their foliage. It appears that the loss of a large percentage of the larch trees of these noble forests must yet be added to the loss of many of the spruces through the agency of pestilent insects.

Wishing to observe what influence had been exerted on the flora by the operation of the salt works at Warsaw and its neighboring localities, that place was visited. It is well known that certain so-called seaside and salt marsh plants occur at Onondaga lake, about the salt works at Salina, and in other places, where there are saline influences. It is evident that at Warsaw no saline influences have been present until quite recently. No salt springs come to the surface. The salt water is manufactured, so to speak, and pumped up from great depths. No salt marsh plants existed there when the salt wells were first opened. Had any been introduced and established there since that time, was a question, the answer to which I wished to put on record. Not a single plant of this character was found. The nearest approach to it is the common orache, *Atriplex patula*, which grows freely along the sea coast; but this plant is also capable of living and thriving in places remote from salt water or saline influences. It has followed the tracks of our railroads till now it is a common plant along these thoroughfares in many places in the interior of the State. At Warsaw it is abundant, and occurs in several well-marked forms, thus showing well its dipsosition to vary. Its fondness for salt water, however, is shown by the fact that it is especially vigorous along the ditches by which the waste brine is carried away, and it follows these for considerable distances. Some of the trees in the immediate vicinity of several factories were seen to be dead or dying. Their death was apparently due to the gaseous products of the combustion of coal which is used in running the works. They were not in reach of the brine.

Two opinions are entertained concerning the liability of plants to the attacks of parasitic fungi. Some claim that, no matter how vigorous and healthy a plant may be, if the spores of its parasite lodge upon it the result will be the development in it of the disease which that parasite generates in that particular host plant. Others claim that there is a difference in the susceptibility of plants of the same species to the attacks of the same parasite; that a plant in a weak, starved or feeble condition is more likely to yield to and suffer from the attacks of its parasites than is one of the same species which is strong, well fed and vigorous. In other words, it is claimed that the vigorous plants, though exposed to the action of the spores of the parasite, have the power to resist the development of the disease and to remain healthy and unaffected; while the more feeble ones, exposed to the action of the spores of the same parasite, yield to the disease and suffer therefrom. This last claim is one of great practical importance, and if it can be shown to be well founded, a knowledge of it may be useful. Two instances illustrative of it fell under my observation the past season.

At Warsaw a small patch of knotgrass, *Polygonum aviculare*, was noticed. The plants were very small and starved in appearance, and seemed to be struggling for existence. A close inspection showed that many of them were affected by a parasitic fungus, *Uromyces Polygoni*. On one side of this patch, and continuous with it, was one composed of taller, more healthy looking plants. These were entirely free from the fungus, thus indicating that the weakness of the plants in one patch had favored the development of the disease, while the strength of the plants in the other had resisted it. It might be said by the supporters of the other claim that the dwarfed and weak condition of the affected plants was due to the presence of the fungus and not the predisposing cause of its presence. To one accustomed to observe this fungus, such an assertion would carry but little weight. But if we should admit the truth of this assertion, how should we explain the presence of the dwarf but unattacked plants in this patch?

In low ground near the lake shore at Port Henry, were numerous seedling plants, apparently of the discoid tickseed, *Coreopsis discoidea*. This ground had been overflowed in time of high water, and when the water receded it left numerous heaps of small sticks, bits of bark and other floodwood. Many of the seedling tickseeds were growing on these heaps of rubbish where there was little or no soil to afford nutriment to their roots. Others were growing on the ground about them, having their roots imbedded in and nourished by the soil. The plants growing on the floodwood were in many instances infested by a parasitic fungus, *Peronospora Halstedii*; but not a single affected plant could be found among those whose roots were in the soil. In this case the better nourished plants had escaped infection, although as much exposed to it as their less favored companions. Possibly there may be cases in which plants are liable to the attacks of parasitic fungi, no matter how strong and vigorous they may be, but it is clear that this can not be a rule without exceptions. Instances are not wanting to show a greater susceptibility to attack in weak than in strong and well fed plants. Those who are accustomed to collect specimens of parasitic fungi soon learn, almost unconsciously, to look for them, either among feeble and starved plants or among those of unusually rank and luxuriant growth.

Very respectfully submitted

CHAS. H. PECK

ALBANY, *December* 15, 1886

(A.)

PLANTS ADDED TO THE HERBARIUM

New to the Herbarium

Geum macrophyllum *Willd.*
Aster sagittifolius *Willd.*
Lactuca Scariola *L.*
Mimulus moschatus *Dougl.*
Amianthium muscaetoxicum *Gr.*
Juncus militaris *Bigel.*
Alopecurus pratensis *L.*
Distichium capillaceum *B. & S.*
Calicium eusporum *Nyl.*
Collybia fuliginella *Pk.*
Clitopilus subvilis *Pk.*
Hebeloma glutinosum *Lind.*
Polyporus dryophilus *Berk.*
P. sinuosus *Fr.*
P. radiculosus *Pk.*
Hydnum velatum *B. & C.*
H. subfuscum *Pk.*
H. carbonarium *Pk.*
Irpex ambiguus *Pk.*
Porothelium papillatum *Pk.*
Thelephora dendritica *Berk.*
Stereum abietinum *Pers.*
Hymenochaete tenuis *Pk.*
Clavaria Kromholzii *Fr.*
Phyllosticta Caryae *Pk.*
P. phaseolina *Sacc.*
P. Lycopersici *Pk.*
P. phomiformis *Sacc.*
P. tumoricola *Pk.*
P. populina *Sacc.*
P. spermoides *Pk.*
P. faginea *Pk.*
P. vagans *Pk.*
P. fatiscens *Pk.*
P. Symphoricarpi *West.*
Phoma magnifructa *Pk.*
P. leguminum *West.*
P. eupyrena *Sacc.*
P. Populi *Pk.*
P. herbarum *West.*
P. Castanea *Pk.*
P. Dipsaci *Sacc.*
Aposphaeria conica *Sacc.*
Cytospora grandis *Pk.*
Haplosporella Pini *Pk.*
Diplodia paupercula *B. & C.*
D. Asparagi *Pk.*
Stagonospora Chenopodii *Pk.*
Septoria Stachydis *R. & D.*
S. fusca *Pk.*
S. Stellariae *R. & D.*
S. Sibirici *Thum.*
S. solidaginicola *Pk.*
S. brevis *Pk.*
S. populicola *Pk.*
S. Smilacinae *E. & M.*
Pilidium graminicola *Pk.*
Gloesporium Robergei *Desm.*
G. septorioides *Sacc.*
G. Lindemuthianum *Sacc.*
Melanconium betulinum *Schm.*
M. dimorphum *Pk.*
Marsonia Populi *Sacc.*
Coryneum tumoricola *Pk.*
Scolecosporium Fagi *Lib.*
Pestalozzia Jefferisii *Ellis.*
Monilia Martini *S. & E.*
M. cinera *Bon.*
Ramularia Barbareae *Pk.*
Coniosporium punctoideum *Karst.*
Cladosporium Aphidis *Thum.*
C. Asparagi *Fr.*
C. brevipes *Pk.*

C. letiferum *Pk.*
Cercospora Acetosellae *Ellis.*
Macrosporium tomato *Cke.*
Pilacre orientalis *B. & Br.*
Graphium Sorbi *Pk.*
Isariopsis alborosella *Sacc.*
Fusarium Lycopersici *Sacc.*
Peziza truncicomes *Ger.*
P. alboviolascens *A. & S.*
Helotium episphaericum *Pk.*
Ascomyces letifer *Pk.*
A. rubrobrunneus *Pk.*
Erysiphe horridula *Lev.*
Calosphaeria ciliatula *Karst.*
Valsa Thujæ *Pk.*
V. exudans *Pk.*
Valsella adhaerens *Fckl.*
V. Laschii *Sacc.*
Diatrypella quercina *Nits.*
Melanconiella Decorahensis *Ellis*
Sphaerella Pinsapo *Thum.*
S. minutissima *Pk.*
S. alnicola *Pk.*
S. Pontederiæ *Pk.*
Diaporthe farinosa *Pk.*
D. sulphurea *Fck.*
Valsaria Niesslii *Sacc.*
Leptosphaeria Asparagi *Pk.*
Massaria Pyrii *Otth.*
Pleospora Shepherdiae *Pk.*
Dothidella Alni *Pk.*
Lophiotrema vestita *Pk.*
L. parasitica *Pk.*

Not New to the Herbarium

Thalictrum purpurascens *L.*
Nelumbium luteum *Willd.*
Nymphæa odorata *Ait.*
Nuphar advena *Ait.*
Nasturtium lacustre *Gr.*
Arabis Drummondii *Gr.*
Cardamine hirsuta *L.*
Lepidium Virginicum *L.*
Lechea major *Mx.*
Polygala paucifolia *Willd.*
Lathyrus palustris *L.*
Lespedeza violacea *Pers.*
Geum rivale *L.*
Pyrus sambucifolia *C. & S.*
Amelanchier Canadensis *T. & G.*
Ribes Cynosbati *L.*
R. lacustre *Poir.*
R. prostratum *L'Her.*
Cornus paniculata *L'Her.*
Lonicera cærulea *L.*
Symphoricarpus racemosus *Mx.*
Aster acuminatus *Mx.*
A. Radula *Ait.*
Solidago uliginosa *Nutt.*
Hieracium pilosella *L.*
Rhododendron Lapponicum *Wahl.*
Hyssopus officinalis *L.*
Polygonum tenue *Mx.*
Diapensia Lapponica *L.*
Carya alba *Nutt.*
Quercus palustris *Du Roi.*
Betula glandulosa *Mx.*
Salix Cutleri *Tuckm.*
Abies alba *Mx.*
Orchis spectabilis *L.*
Clintonia borealis *Raf.*
Streptopus roseus *Mx.*
S. amplexifolius *D. C.*
Polygonatum biflorum *Ell.*
Luzulu parviflora *Desv.*
Juncus articulatus *L.*
Scirpus Eriophorum *Mx.*
Scleria verticillata *Muhl.*
Carex alopecoidea *Tuckm.*
C. flava *L.*
C. longirostris *Torr.*
Agrostis vulgaris *With.*
Avena striata *Mx.*
Panicum capillare *L.*
P. Crus-galli *L.*
Setaria glauca *Br.*
Triticum caninum *L.*
Aspidium Goldianum *Hook.*
Omphalia umbellifera *L.*
Pleurotus subareolatus *Pk.*

Crepidotus haerens *Pk.*
Boletus subaureus *Pk.*
Polyporus pubescens *Fr.*
P. cyphellaeformis *B. & C.*
Trametes mollis *Fr.*
Phlebia radiata *Fr.*
Odontia fimbriata *Fr.*
Peniophora neglecta *Pk.*
Clavaria pinea *Pk.*
Gloeosporium Martini *S. & E.*
Marsonia Juglandis *Sacc.*
Ramularia Plantaginis *E. & M.*
Cystopus Bliti *Lev.*
Peronospora Halstedii *Farl.*
P. gangliformis *De By.*
Trichothecium roseum *Lk.*
Pezicula acericola *Pk.*
Uncinula adunca *Lev.*
Hypoxylon atropunctatum *Schw.*
Diaporthe acerina *Sacc.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs. M. M. Patton, Berne, N. Y.

Cynoglossum grande *Dougl.*
Brodiæa capitata *Benth.*

Mrs. I. B. Sampson, Albany, N. Y.

Sarracenia variolaris *Mx.*
Polygala nana *DC.*
Ruellia oblongifolia *Mx.*
Eriocaulon gnaphalodes *Mx.*

Hon. David Murray, Albany, N. Y.

Viola lutea *Sm.*
Arenaria verna *L.*
Silene inflata *Sm.*
Parnassia palustris *L.*
Saxifraga aizoon *Jacq.*
S. azoides *L.*
S. bryoides *L.*
Sedum acre *L.*
S. saxatile L.
Linnea borealis *Gron.*
Gnaphalium leontopodium *Willd.*
Hieracium pilosella *L.*
Loiseleuria procumbens *Desv.*

Prof. James Hall, Albany, N. Y.

Agaricus subareolatus *Pk.*

Charles E. Beecher, Albany, N. Y.

Lenzites sepiaria *Fr.*
Polyporus brumalis *Fr.*
P. sanguineus *L.*
Trametes hydnoides *Fr.*
Dædalea glaberrima *B. & C.*
Stereum versicolor *Fr.*
Hypochnus rubrocinctus *Ehr.*
Geaster minimus *Schw.*

George A. Rex, M.D., Philadelphia, Penn.

Hemiarcyria stipata *R.*
Arcyria dictyonema *R.*
A. Œrstedii *R.*
Trichia Jackii *R.*
Tilmadoche gyrocephalum *Mont.*
Physarum pulcherrimum *B. & C.*
P. Petersii *B. & C.*

Rev. A. B. Langlois, Pointe a la Hache, La

Cytospora pallida *Ellis.*
Fusarium sarçochroum *Desm.*
Ailographum caespitosum *E. & E.*
Dinemasporium Langloisii *Ellis.*
Botryodiplodia diplocarpa *E. & E.*
Meliola sanguinea *Ellis.*
Valsa hylodes *Ellis.*

E. C. Howe, M.D., Lansingburg, N. Y.

Carex Buxbaumii *Wahl.*
Alopecurus geniculatus *L.*
Triticum caninum *L.*

H. L. Griffis, Binghamton, N. Y.

Polygala paucifolia *Willd.*

C. E. Smith, Philadelphia, Penn.

Baptisia tinctoria *R. Br.*
Polygala lutea *L.*
Linaria vulgaris *Mill.*

P. H. Dudley, New York, N. Y.

Trametes Pini *Fr.*
Polyporus versicolor *Fr.*

Prof. B. T. Galloway, Columbia, Mo.

Cercospora condensata *E. & K.*
C. Gymocladi *E. & K.*
C. rhuina *C. & E.*
C. Plantaginis *Sacc.*
C. Caulophylli *Pk.*
Cercospora Sanguinariae *Pk.*
Puccinia Seymeriae *Burrill.*
Septoria bacciligera *Wint.*
Gloeosporium Aceris *Cke.*
Marsonia Quercus *Pk.*

Prof. L. M. Underwood, Syracuse, N. Y.

Puccinia curtipes *Howe.*
Uromyces Trifolii *Fckl.*

Prof. T. H. McBride, Iowa City, Iowa.

Boletus sphærosporus *Pk.*

Julius A. Bisky, Flushing, N. Y.

Aster Radula *Ait.*
A. acuminatus *Mx.*
Mimulus moschatus *Dougl.*
Amianthium muscaetoxicum *Gr.*

Prof. F. Lamson Scribner, Washington, D. C.

Arundo Donax *L.*

A. P. Morgan, Preston, O.

Polyporus endocrocinus *Berk.*

Prof. William Trelease, St Louis, Mo.

Lycoperdon delicatum *B. & C.*
L. rimulatum *Pk.*
Dothidea viridispora *Cke.*

Prof. W. A. KELLERMAN, Manhattan, Kansas.

Lenzites abietina *Fr.*
Panus stipticus *Fr.*
Polyporus adustus *Fr.*
P. brumalis *Fr.*
P. sulphureus *Fr.*
P. applanatus *Fr.*
P. picipes *Fr.*
P. fraxinophilus *Pk.*
Trametes sepium *Berk.*
Craterellus cornucopioides *Fr.*
Stereum frustulosum *Fr.*
Merulius tremellosus *Schrad.*
Hydnum pallidum *C. & E.*
Tremella foliacea *Fr.*
Gloeosporium stenosporum *E. & K.*
Vermicularia Dematium *Fr.*
Darluca filum *Cast.*
Leptostroma vulgare *Fr.*
L. Actææ *Schw.*
Septoria Verbenæ *R. & D.*
S. gaurina *E. & K.*
S. Nolitangeris *Ger.*
S. Kalmicola *B. & C.*
S. Helianthi *E. & K.*
S. Verbascicola *B. & C.*
S. Polygonorum *Desm.*
S. Mimuli *E. & K.*
S. Pruni *Ellis.*
S. Cerastii *R. & D.*
S. Gei *Desm.*
S. sphærelloides *E. & K.*
S. xanthifolia *E. & K.*
S. Sisymbrii *Ellis.*
S. Speculariæ *B. & C.*
S. Erigerontis *Pk.*
S. lactucicola *E. & M.*
S. Cacaliæ *E. & K.*
Phyllosticta Asiminæ *E. & E.*
P. acericola *B. & C.*
P. smilacina *E. & M.*
P. Phaseoli *Sacc.*
P. Chenopodii *West.*
P. Ampelopsidis *E. & M.*
P. Labruscæ *Thum.*
P. Podophylli *Wint.*
P. Lycii *E. & K.*
Discosia maculæcola *Ger.*
Phoma glandicola *Desm.*
Stilbospora ovata *Pers.*
Coniothyrium herbarum *C. & E.*
Sphaeronema Persicae *Schw.*
Caeoma mercurialis *Lk.*
Coleosporium Campanulacearum *Fr.*
C. Sonchi *Tul.*
C. Senecionis *Fr.*
C. Agrimoniae *Bon.*
Uredo Smilacis *Schw.*
Trichobasis Crotonis *Cke.*
Chrysomyxa pyrolatum *Koenig.*
Synchytrium Anemones *Woron.*
S. mercurialis *Fckl.*
S. Taraxaci *DeBy.*
Roestelia penicillati *Fr.*
R. lacerata *Tul.*
Melampsora salicina *Lev.*
Æcidium impatientatum *Schw.*
Æ. Allii-ursini *Pers.*
Æ. Tragopogonis *Pers.*
Æ. Prenanthis *Pers.*
Æ. Euphorbiæ *Pers.*
Æ. leucospermum *DC.*
Æ. rubellum *Pers.*
Æ. Epilobii *DC.*
Æ. Œnotheræ *Pk.*
Æ. Caladii *Schw.*
Æ. Dicentrae *Trel.*
Æ. Ficariae *Pers.*
Æ. Violae *Schum.*
Æ. Callirrhoes *E. & K.*
Æ. amphigenum *E. & K.*
Æ. Sambuci *Schw.*
Æ. Verbenicola *E. & K.*
Æ. Ceanothi *E. & K.*
Uromyces appendiculatus *Lev.*
U. Zygadeni *Pk.*
U. Euphorbiae *C. & P.*
U. Lespedezae *Schw.*
U. Alchemillae *Pers.*
U. Peltandrae *Howe.*
U. Hyperici *Schw.*
Ustilago Carbo *Tul.*

U. Syntherismæ *Schw.*
Phragmidium obtusum *Lk.*
Gymnosporangium macropus *Schw.*
Puccinia Sorghi *Schw.*
P. Helianthi *Schw*
P. Mariae Wilsoni *Clint.*
P. Amorphae *Curt.*
P. aculeata *Lk.*
P. Artemisiarum *Duby.*
P. Myrrhis *Schw.*
P. Xanthii *Schw.*
P. Malvastri *Pk.*
P. nigrescens *Pk.*
P. Polygonorum *Lk.*
P. solida *Schw.*
P. Chaerophylli *Purt.*
P. Menthæ *Pers.*
P. Silphii *Schw.*
Epicoccum sphærococcum *Berk.*
Sporocybe byssoides *Fr.*
Fusicladium fasciculatum *C. & E.*
Helminthosporium gracile *Wallr.*
H. interseminatum *B. & R.*
Macrosporium Maydis *C. & E.*
M. Solani *E. & M.*
M. Catalpæ *E. & M.*
Polythrincium Trifolii *Kze.*
Stachybotrys lobulata *Berk.*
Botrytis vulgaris *Fr.*
Pyricularia grisea *Sacc.*
Cylindrosporium Fraxini *E. & K.*
Microstroma leucospora *Niessl.*
Ramularia Desmodii *Cke.*
R. Astragali *E. & H.*
R. Grindeliæ *E. & K.*
R. rufomaculans *Pk.*
R. Tulasnei *Sacc.*
Entyloma Ranunculi *Bon.*
E. Physalidis *Wint.*
Cystopus cubicus *Lev.*
C. Bliti *DeBy.*
Peronospora sordida *Berk.*
P. parasitica *Tul.*
P. gangliformis *DeBy.*
P. alta *Fckl.*
P. Halstedii *Farl.*
P. Oxybaphi *E. & K.*
P. Arthurii *Farl.*
Cercospora Acalyphae *Pk.*
C. Ampelopsidis *Pk.*
C. Chenopodii *Fres.*
C. Plantaginis *Sacc.*
C. effusa *Ellis.*
C. Desmodii *E. & K.*
C. condensata *E. & K.*
Cercospora Gymnocladi *E. & K.*
C. chionea *E. & K.*
C. Isanthi *E. & K.*
C. rhuina *C. & E.*
C. microsora *Sacc.*
C. Teucrii *E. & K.*
Peziza capitata *Pk.*
P. floccosa *Schw.*
P. nivea *Fr.*
Ascobolus pilosus *Fr.*
Phacidium Pini *Schw.*
P. Medicaginis *Schw.*
Cenangium triangulare *Schw.*
Exoascus deformans *Berk.*
Chætomium chartarum *Cd.*
Chætomella perforata *E. & E.*
Podosphaeria Kunzei *Lev.*
Phyllactinia suffulta *Reb.*
Erysiphe lamprocarpa *Lev.*
Uncinula adunca *Lev.*
U. Ampelopsidis *Pk.*
U. macrospora *Pk.*
Microsphaeria Euphorbiae *B. & C.*
M. Platani *Howe.*
Diatrype disciformis *Fr.*
D. bullata *Fr.*
D. hypophlæa *B. & C.*
Xylaria Hypoxylon *Fr.*
Hypoxylon sassafras *Schw.*
H. atropunctatum *Schw.*
Rosellinia millegrana *Sacc.*
Dothidea perisporioides *B. & C.*
Stigmatea Robertiani *Fr.*
Diaporthe spiculosa *Fr.*
Phyllachora Ulmi *Fckl.*
Heliosphaeria patella *Grev.*
Linospora capreæ *Fckl.*

Venturia orbicula *C. & P.*
Kellermania yuccagena *E. & E.*
Leptosphaeria doliolum *Pers.*
Pleonectria denigrata *Wint.*
Ophiobolus porphyrogonus *Sacc.*
Melanomma pulvispyrius *Fckl.*
Gnomonia setacea *Pers.*
Melanconis dasycarpa *E. & R.*
Sphaeria Caryaæ *C. & E.*
S. Arthuriana *Sacc.*
S. anguillida *C. & E.*
S. fulgida *C. & P.*
Sphærella decidua *E. & K.*
S. maculaeformis *Pers.*
S. sparsa *Awd.*
S. polystigma *Ellis.*
S. Campanulae *E. & K*

E. J. Forster, M.D., Boston, Mass.

Hydnum auriscalpium *L.*
Scleroderma vulgare *Fr.*
Phyllosticta Sambuci *Desm.*
Sporidesmium lepraria *B. & Br.*
Phragmidium bulbosum *Schl.*
P. mucronatum *Lk.*
P. gracile *Grev.*
Triphragmium Ulmariae *Lk.*
Puccinia graminis *Pers.*
P. clandestina *Carm.*
P. Umbilici *Guep.*
Ustilago Carbo *Tul.*
Urocystis pompholygodes *Schl.*
Podisoma Sabinae *Fr.*
Roestelia lacerata *Tul.*
Sepedonium chrysospermum *Lk.*
Chaetomium elatum *Kze.*
Hypomyces aurantius *Tul.*
H. lateritius *Tul.*
H. rosellus *Tul.*
Sphaerotheca Castagnei *Lev.*
Sphaeria fimbriata *Pers.*
Sphaerella Buxi *DC.*
Stigmatea Robertiani *Fr.*

H. C. Gordinier, M.D., Troy, N. Y.

Ranunculus alismaefolius *Geyer.*
Lepidium campestre *L.*
Cerastium nutans *Raf.*
Arenaria lateriflora *L.*
Geranium Caroliñianum *L.*
Trifolium hybridum *L.*
Mitella nuda *L.*
Chrysopsis graminifolia *Nutt.*
Polygonum tenue *Mx.*
Rumex brittanica *L.*
Blitum capitatum *L.*
Populus balsamifera *L.*
Salix candida *Willd.*
Thuja occidentalis *L.*
Orchis spectabilis *L.*
Cypripedium spectabile *Swartz.*
Carex Buxbaumii *Wahl.*
C. Muhlenbergii *Schk.*
C. alopecoidea *Tuck.*
C. aurea *Nutt.*
Alopecurus geniculatus *L.*
Glyceria acutiflora *Torr.*
Pardanthus Chinensis *Ker.*

J: Dunn, Albany, N. Y.

A piece of wood of silver maple, showing the scar of an inscribed cross, both in the wood and the bark.

W. S Hayward, Sodus, N. Y.

A splinter of wood and fragments of stone broken by lightning

(C.)

PLANTS NOT BEFORE REPORTED

GEUM MACROPHYLLUM, Willd.

Adirondack mountains, near the inlet of Lower Ausable pond. In the Manual this species is accredited to the base of the White mountains, Northern Michigan, Illinois and north-westward. Our newly discovered station is intermediate between the eastern and western localities recorded in the Manual. Flowering specimens were collected in June.

LACTUCA SCARIOLA, L.

Introduced, but apparently well established, in Clyde, Wayne county. September.

MIMULUS MOSCHATUS, Dougl.

Introduced. "Well established in a bog near Locust Valley," Long Island. *Julius A. Bisky.* August.

AMIANTHIUM MUSCÆTOXICUM, Gr.

Valley Stream, Long Island. July. *J. A. Bisky.* This is probably one of its most northern stations.

JUNCUS MILITARIS, Bigel.

Adirondack mountains. In Mud pond and Clear pond near Long lake. July. The bayonet rush grows in shallow water in these localities. Its panicle is not very conspicuous, and a superficial observer might easily mistake the plant for the great bulrush, *Scirpus validus*, which grows in similar situations. It spreads by creeping rootstocks which give origin to new plants, sometimes at less than an inch from the parent plant. The capillary submersed leaves noticed by Dr Robbins in flowing water were not seen in these stations, in which the plants grow in quiet water. The whitish membranous scales that subtend the reddish-brown or chestnut colored heads of flowers are noticeable by reason of the contrast in colors.

DISTICHIUM CAPILLACEUM, B. & S.

Wet rocks and precipices. Adirondack mountains, Cascadeville. June. The distichous arrangement of the leaves, characteristic of the genus, is not very conspicuous in this moss, which at first sight somewhat resembles *Dicranella heteromalla*.

CALICUM EUSPORUM, Nyl.

Bark of dead balsam, *Abies balsamea*. Chapel pond, Adirondack mountains. June. This rare lichen has but recently been detected in this country. Mr. Willey informs me that he first found it about a year ago in the White mountain region.

COLLYBIA FULIGINELLA, N. sp.

Pileus convex or nearly plane, sometimes irregular or undulate on the margin, glabrous, even, fuliginous-brown, flesh white; lamellae, rather narrow, close, rounded behind, adnexed or nearly free, white; stem equal or slightly tapering upward, subfibrillose, stuffed or hollow, colored like the pileus or a little paler, white tomentose at the base; spores subelliptical, .0003 to .00035 inch long, .0002 to .00025 broad, usually containing a single large nucleus.

Pileus 1.5 to 2.5 inches broad, stem 1.5 to 2 inches long, 2 to 3 lines thick.

Under or near arbor-vitae, *Thuja occidentalis*. Elizabethtown, Essex county. September.

In size and shape this species resembles *Collybia dryophila*, but its color, which closely resembles that of *Lactarius lignyotus*, is far different.

CLITOPILUS SUBVILIS, N. sp.

Pileus thin, centrally depressed or umbilicate, with the margin decurved, hygrophanous, dark-brown and striatulate when moist, grayish-brown and silky-shining when dry; lamellae subdistant, adnate or slightly decurrent, whitish when young, then flesh-colored; stem slender, brittle, rather long, stuffed or hollow, glabrous, colored like the pileus or a little paler; spores irregular, angular, .0003 to .0004 inches long; odor weak or none, taste farinaceous.

Pileus 8 to 15 lines broad, stem 1.5 to 3 inches long, 1 to 2 lines thick.

Damp soil in thin woods. Karner, Albany county. October.

The species seems to be closely related to *Clitopilus vilis*, from which I have separated it because of its smooth and shining (not flocculose and opaque), pileus and its farinaceous taste. It was discovered in 1884, growing, in company with *Entoloma rhodopolium* in such a way that it was taken to be a variety of it, and it was referred to that species under the name var. *umbilicatum.* This year it was found plentifully in the same locality, but entirely unaccompanied by *E. rhodopolium.* A more careful study of it leads me to the conclusion that it is a distinct species.

HEBELOMA GLUTINOSUM, Lind.

Among fallen leaves and on half buried decaying wood, in thin woods. Conklingville. September.

In wet weather the gluten is sufficiently copious to drip from the pileus.

CORTINARIUS SUBFERRUGINEUS, Fr.

Thin woods. Conklingville. September.

POLYPORUS DRYOPHILUS, Fr.

At the base of oak trees. Conklingville. July.

POLYPORUS SINUOSUS, Fr.

Decaying wood of maple, *Acer saccharinum.* Forestburgh, Sullivan county. September. The species is remarkable for and easily known by its sweet and agreeable fragrance, which has been likened to that of licorice.

POLYPORUS RADICULOSUS, N. sp.

Resupinate, effused, thin, soft, tender, orange-yellow, the mycelum creeping in and over the wood, silky-tomentose, at first white, then yellow, forming numerous yellow branching root-like strings or ribs which are more or less connected by a soft, silky tomentum; pores rather large, angular, at first shallow, sunk in the mycelium, the dissepiments becoming more elevated, thin and fragile; spores elliptical, .0002 to .00025 inch long, .00012 to .00016 broad.

Half buried chips of poplar. *Populus tremuloides.* Gansevoort. September.

The species is allied to *P. Vaillantii*, in its peculiar rhizomorphoid strings of mycelium, but from this it differs decidedly in its color and texture. In these respects it approaches *P. bombycinus*, of which it may possibly be a peculiar variety. It is very destructive to the wood on which it grows, causing it to become soft, brittle and even friable.

HYDNUM VELATUM, B. & C.

Decaying wood of poplar. *Populus tremuloides*. Gansevoort. September.

HYDNUM SUBFUSCUM, N. sp.

Resupinate, thin, soft, the margin and subiculum beneath white-tomentose, sometimes extended into branching strings of mycelium, the upper surface of the subiculum pale yellowish-brown or dingy-isabelline, when magnified, appearing as if sprinkled with minute shining particles; aculei slender, subulate, very acute, white when young, then with white tips or wholly colored like the subiculum.

Decaying wood of deciduous trees. Conklingville. September. In *H. himantia*, which, in some respects, this species resembles, the teeth are described as obtuse and pulverulent.

HYDNUM CARBONARIUM, N. sp.

Resupinate, very thin, at first floccose-pruinose and white, then smoky-brown, sometimes retaining a white margin; aculei at first short, then longer, subulate or cylindrical, minutely ciliate at the apex, whitish when young, then smoky-brown.

Charred wood. Elizabethtown. September. The species is easily recognized by its peculiar color and by the ciliate or setulose tips of the teeth. It appears as if it had been smoked or scorched.

IRPEX AMBIGUUS, N. sp.

Resupinate, adnate; subiculum very thin, flocculose-pruinose, white, becoming pallid with age; aculei oblique, somewhat united at the base, minute, very variable, subulate and entire, or compressed, acute, truncate, branched, incised or subserrate, white when young, becoming pallid with age.

Decaying beech wood and bark. Adirondack mountains. September.

It forms small irregular or interrupted patches. To the naked eye it resembles *Hydnum pallidum*, but the teeth are more or less united at the base, thus requiring it to be placed in the genus Irpex. Scarcely any two of them are exactly alike.

POROTHELIUM PAPILLATUM, N. sp.

Effused, very thin, flocculose-pruinose, white when young, then pallid or isabelline, subwaxy and often rimose, the margin white-determinate; verrucae minute, subdistant, at first a limpid globule resting on the subiculum, then slightly prominent, papilliform, colored like the subiculum and crowned with a limpid globule which varies in color from hyaline to amber.

Decorticated wood of poplar, *Populus tremuloides*. Elizabethtown. September. It forms patches several inches in extent. It is apparently related to *P. Friesii*, but it is not membranous, the warts are colored like the subiculum and are not immersed in it.

THELEPHORA DENDRITICA, Berk.

Overspreading the hymenium of effete *Polyporus applanatus*. Adirondack mountains. September.

STEREUM ABIETINUM, Pers.

Prostrate trunk of spruce, *Abies nigra*. Cascadeville, Adirondack mountains. June.

Our specimens agree with the description of the species to which we have referred them, but they present some interesting characters not mentioned in that description. It often happens that great perplexity arises because of the incomplete descriptions of some of the older authors. A careful examination of our specimens shows the presence of both setae and metuloids, the latter much more numerous than the former. Thus this species does for Stereum, Hymenochæte and Peniophora what *Dædalea confragosa* does for Dædalea, Trametes and Lenzites, as was shown in the thirtieth report. It sets at naught the characters used in distinguishing these genera, and bids defiance to the generic limits assigned in the botanies. To the naked eye, the hymenium in our specimens has a somewhat "velvety pruinose" appearance, but when examined by the microscope it is found to be abundantly furnished with projecting setiform bodies, some of which are smooth and colored, as in Hymenochæte; others are colorless and rough or minutely warted, as in Peniophora. Sometimes a single one is colorless and warted in the upper part, colored and smooth in the lower. And as if this was not enough of confusion to our former notions, the hymenium, though dry, becomes rimose as in many species of Corticium. The fungus sometimes forms patches several inches in extent by the confluence of individuals. It is nearly or quite one line thick, the intermediate stratum being composed of erect fibres. Though dry, it is not very tough. The spores are oblong or subfusiform .0005 to .0007 inch long, .0004 broad.

HYMENOCHÆTE TENUIS, N. sp.

Resupinate, very thin, even, forming elongated, more or less confluent, dark ferruginous patches, concolorous on the determinate margin, inseparable, rimose; setae acute, .0012 to .0025 inch long.

Decorticated wood of arbor-vitae, *Thuia occidentalis*. Cascadeville. June.

CLAVARIA KROMHOLZII, Fr.

Open woods. Brewerton and Adirondack mountains. September.

PHYLLOSTICTA LYCOPERSICI, N. sp.

Spots large, suborbicular, cinereous; perithecia minute, brown or blackish, opening by a single or sometimes by two pores; spores abundant, oblong or elliptical, .00025 to .0003 inch long, .0001 to .00012 broad.

Fruit of tomato, *Lycopersicum esculentum*. Menands, Albany county. July.

PHYLLOSTICTA PHASEOLINA, Sacc.

Leaves of cultivated bean, *Phaseolus vulgaris*. Menands. September.

PHYLLOSTICTA CARYÆ, N. sp.

Spots large, irregular, often confluent, at first yellowish, then brown, sometimes becoming grayish in the center; perithecia minute, .004 inch broad, punctate, epiphyllous; spores irregularly elliptical, .0002 inch long, .00008 broad.

Living leaves of hickory, *Carya alba*. Piffard. August.

PHYLLOSTICTA PHOMIFORMIS, Sacc.

Living leaves of white oak, *Quercus alba*. Sandlake, Rensselaer county. September.

PHYLLOSTICTA TUMORICOLA, N. sp.

Spots suborbicular, arid, pallid with a reddish or reddish-brown margin, apparently caused by insects; perithecia amphigenous or epiphyllous minute, .005 to .007 inch broad, depressed, brownish; spores oblong or narrowly elliptical, colorless, .0004 to .0005 inch long, .0002 to .00025 broad.

Living gall-spotted leaves of white oak, *Quercus alba*. Karner. October. In *P. phomiformis* the spores are much larger than in this species. The spots are centrally punctured and appear to have been produced by the stings of insects.

PHYLLOSTICTA POPULINA, Sacc. v. PARVA n. var.

Living or languishing leaves of necklace poplar, *Populus monilifera*. Menands. October.

Spots very small, orbicular, white, with a brown border; perithecia one to four on a spot.

PHYLLOSTICTA SPERMOIDES, N. sp.

Spots suborbicular, brown or cinereous with a brown border, sometimes confluent; perithecia minute, .0014 to .0025 inch broad, numerous, hypophyllous, blackish; spores minute, cylindrical, .0002 inch long.

Living leaves of wild grape vine, *Vitis riparia*. Gansevoort. September.

PHYLLOSTICTA FAGINEA, N. sp.

Spots suborbicular, small, often seriate or subconfluent, and arranged in rows parallel to the veins of the leaf, cinereous or reddish-gray, with a reddish-brown border or wholly reddish-brown, subferruginous beneath; perithecia few, epiphyllous, minute, .003 inch broad, black; spores ovate or elliptical, .0003 to .0004 inch long, .0002 to .00025 broad.

Living leaves of beech, *Fagus ferruginea*. Argusville and Elizabethtown. September.

PHYLLOSTICTA VAGANS, N. sp.

Spots none; perithecia minute, .003 to .0035 inch broad, amphigenous, numerous, occupying the whole leaf, black; spores very minute, spermatoid, .00012 inch long, .00004 broad, sometimes oozing out and forming a white globule.

Dead leaves of *Smilacina racemosa*. Conklingville. September.

. This is a very anomalous species. But for the very short minute spores, it would accord better with Septoria than Phyllosticta.

PHYLLOSTICTA FATISCENS, N. sp.

Spots rather large, suborbicular, pallid, generally marked by one or more elevated concentric lines, at length cracking around the margin and separating, wholly or in part, from the uninjured tissues of the leaf; perithecia minute, .004 inch broad, epiphyllous, at first pale, then brownish; spores oblong, straight or slightly curved, .00025 to .0004 inch long, .00012 to .00016 broad.

Living leaves of yellow pond lily, *Nuphar advena*. Argusville, Schoharie county. July.

PHYLLOSTICTA SYMPHORICARPI, West.

Living leaves of snowberry, *Symphoricarpus racemosus*. Canajoharie, Montgomery county. July.

PHOMA MAGNIFRUCTA, N. sp.

Perithecia small, .005 to .007 inch broad, scattered, subglobose erumpent, black; spores oblong-fusiform, .0009 to .0012 inch long, .0003 to .0004 broad; sporophores short.

Cone scales of arbor vitae, *Thuja occidentalis*. Keene, Essex county. June.

This species is readily distinguished from others inhabiting cone scales by its large spores.

PHOMA LEGUMINUM, West.

Legumes of locust, *Robinia pseudacacia*. Piffard. August.

PHOMA OLERACEA, Sacc. v. DIPSACI Sacc.

Dead stems of teasel, *Dipsacus sylvestris*. Wallington, Wayne county. September.

PHOMA EUPYRENA Sacc.

Dead potato stems. Menands. October.

PHOMA POPULI, N. sp.

Perithecia minute, .003 to .004 inch broad, epiphyllous, gregarious, black, opening by a large pore; spores cylindrical, straight or slightly curved, .0006 to .0008 inch long, .00012 broad.

Dead leaves of poplar, *Populus tremuloides*. Elizabethtown. September.

PHOMA HERBARUM, West.

Dead stems of wormwood, *Artemisia vulgaris*. Port Henry. June.

PHOMA CASTANEA, N. sp.

Perithecia numerous, surrounding the branch, .011 to .014 inch broad, erumpent, black; spores minute, oblong or cylindrical, .00025 to .0003 inch long, .00006 to .00008 broad; sporophores short.

Dead branches of chestnut, *Castanea vesca*. Sandlake. May.

APOSPHÆRIA CONICA, Sacc.

Decaying oak wood. Piffard. August.

CYTOSPORA GRANDIS, N. sp.

Pustules large, two to three lines broad, ellipsoid or suborbicular, scar-like, ferruginous from the ruptured bark; loculi numerous; spores minute, curved, .0002 inch long.

Dead bark of sumach, *Rhus typhina*. Gansevoort. September.

HAPLOSPORELLA PINI, N. sp.

Perithecia valsoid, caespitose, three to five in a cluster, sunk in the inner bark, erumpent; spores globose or subelliptical, colored, .0005 to .0006 inch long.

Dead bark of white pine, *Pinus Strobus*. Elizabethtown. June

DIPLODIA PAUPERCULA, B. & Br.

Dead branches of elder, *Sambucus Canadensis*. Adirondack mountains. June.

DIPLODIA ASPARAGI, N. sp.

Perithecia gregarious, subglobose, minute, opening by a papillate pore, black; spores elliptical, colored, .0008 to .001 inch long, .0005 broad.

Dead stems of asparagus. Menands. October.

STAGONOSPORA CHENOPODII, N. sp.

Spots few, large, brown or yellowish-brown; perithecia minute, .004 to .005 inch broad, black; spores oblong, obtuse, biseptate or triseptate, constricted at the septa, colorless, .0008 to .001 inch long, .0003 to .0004 broad.

Living leaves of goose-foot, *Chenopodium album*. Menands. August.

SEPTORIA STACHYDIS, R. & D.

Living leaves of hedge nettle, *Stachys aspera*. Port Kent. June.

SEPTORIA FUSCA, N. sp.

Spots blackish-brown, indefinite, occupying the lobes of the leaves or their margins; perithecia epiphyllous, black; spores filiform, straight, slightly curved or flexuous. .0016 to .002 inch long.

Living or languishing leaves of wormwood, *Artemisia vulgaris*. Port Henry. June.

It differs from *S. Artemisiae* in its indefinite spots and longer spores.

SEPTORIA STELLARIÆ, R. & D.

Living or languishing leaves of chickweed, *Stellaria media*. Aden Lair, Adirondack mountains. June.

SEPTORIA SIBIRICI, Thum.

Living leaves of fetid currant, *Ribes prostratum*. Adirondack mountains. September.

SEPTORIA SOLIDAGINICOLA, N. sp.

Spots small, angular, white or whitish on the upper surface, darker beneath, surrounded by a brown or reddish brown border; perithecia few, usually one or two on a spot, epiphyllous, subglobose, blackish; spores linear, straight, subacute, simple, .001 to .0016 inch long, .00016 broad.

Living leaves of goldenrod, *Solidago arguta*. Cobble hill, near Elizabethtown. September.

Distinguished from *S. Solidaginis* by its longer continuous spores, which are neither septate nor nucleate.

SEPTORIA BREVIS, N. sp.

Spots none; perithecia scattered, epiphyllous, minute, .003 to .004 inch broad, opening widely, black; spores short, .0004 to .0005 inch long, .00006 broad, straight or slightly curved.

Dead leaves of *Solidago virgaurea* v. *alpina*. Mt. Marcy. June.

Distinct from other species inhabiting solidago, by its very short spores, which resemble somewhat the allantoid spores of species of Valsa.

SEPTORIA POPULICOLA, N. sp.

Spots suborbicular, reddish or brownish red with a narrow blackish border on the upper surface, grayish on the lower, perithecia hypophyllous, few, pale, opening widely; spores filiform curved, two to four-septate, .0025 to .003 inch long, .00012 to .00016 broad.

Living leaves of balm of Gilead, *Populus balsamifera*. Keene. June.

Distinguished from other species found on poplar by its long pluriseptate spores. The perithecia are but slightly developed.

SEPTORIA SMILACINÆ, E. & M.

Languishing leaves of *Smilacina racemosa*. Sandlake. September.

PILIDIUM GRAMINICOLA, N. sp.

Perithecia minute, .008 to .014 inch broad, depressed, erumpent, orbicular or hysteriform, membranous, opening widely, black. the disk whitish, the mouth laciniate-dentate; spores oblong or subfusiform, colorless, triseptate, .0012 to .0016 inch long, .0004 to .00045 broad; sporophores short, colorless.

Dead leaves of blue joint, *Calamagrostis Canadensis*. Mount Marcy. June.

GLŒOSPORIUM LINDEMUTHIANUM, Sacc.

Living bean pods, especially of the butter or wax bean. Menands. August.

An injurious fungus that produces brown spots on the pods, thus spoiling their appearance and diminishing their value.

GLŒOSPORIUM SEPTORIOIDES, Sacc.

Living leaves of white oak, *Quercus alba*. Gansevoort. September.

GLŒOSPORIUM ROBERGEI, Desm.

Living leaves of water beech, *Carpinus Americana*. Gansevoort. September.

MELANCONIUM BETULINUM, Schm.

Dead bark of white birch, *Betula populifolia*. Menands. September.

Distinguished from *M. bicolor* by its longer spores.

MELANCONIUM DIMORPHUM, N. sp.

Pustules small, subcutaneous, slightly prominent, subconical, black, containing a small white stroma; spores of two forms, one narrow, cylindrical, straight or curved, .0003 to .0004 inch long, .00008 broad, the other oblong, elliptical or subfusiform, colored, .0004 to .0005 inch long, .0002 to .00025 broad, oozing out in a black mass or in tendrils.

Dead branches of alder, *Alnus viridis*. Adirondack mountains. June.

Remarkable for the two kinds of spores. In some pustules the broader spores are more numerous, in others the narrower ones, but both kinds were found in all the pustules examined. Can the narrow ones be broken or effete sporophores?

MARSONIA POPULI, Sacc.

Living leaves of *Populus monilifera*. Menands. July.

CORYNEUM TUMORICOLA, N. sp.

Spots scattered, suborbicular, pallid with a reddish-brown border, apparently produced by insects; heaps epiphyllous, minute, dot-like, unequal, black; spores oblong, triseptate, colored, .0004 to .0005 inch long, .00016 broad, at length breaking from the sporophores.

Living leaves of elm, *Ulmus Americana*. Adirondack mountains. July. The spots in this instance, as in that of *Phyllosticta tumoricola*, appear to be due to the stings of insects. A central aperture or puncture is visible in the spot and the fungus occurs on only a part of them.

SCOLECOSPORIUM FAGI, Lib.

Dead branches of alder, *Alnus incana*. Elizabethtown. September.

The typical form occurs on beech, but I find no essential differences in the form on alder. *Massaria macrosperma*, the ascigerous form, has not yet been observed with us.

PESTALOZZIA JEFFERISII, Ellis.

Leaves of wild grape, *Vitis riparia*. Gansevoort. September.

The fungus occurs on spots which are apparently produced by a sterile Rhytisma.

MONILIA MARTINI, E. & S.

Old corn cobs. Menands. September.

MONILIA CINEREA, Bon.

On plums. Sandlake. Closely related to *Monilia fructigena*, with which the species has been united by some authors.

RAMULARIA BARBAREÆ, N. sp.

Spots suborbicular, arid, white, generally bordered by a slightly thickened brown line; flocci amphigenous, either short and branched or longer and simple; spores oblong or cylindrical, often catenulate, rarely uniseptate, .0004 to .0009 inch long, .00012 to .00016 broad.

Living leaves of winter cress, *Barbarea vulgaris*. Highland Mills and Port Henry. June.

This species is closely related to *R. Armoraciae*, from which it may be distinguished by the whiter mostly margined spots, the shorter hyphae and the catenulate spores.

CONIOSPORIUM PUNCTOIDEUM, Karst.

Decorticated wood of arbor vitae, *Thuja occidentalis*. Adirondack mountains. June.

CLADOSPORIUM APHIDES, Thum.

Dead aphides of *Phragmites communis*. Bergen Swamp. June.

CLADOSPORIUM ASPARAGI, Fr.

Dead stems of asparagus. Menands. October.

CLADOSPORIUM BREVIPES, N. sp.

Spots suborbicular, cinereous; flocci densely caespitose, short, .001 to .0015 inch long, dark olivaceous, almost black in the mass, amphigenous, septate; spores terminal, elliptical, .0005 to .0006 inch long, .0003 to .0004 broad.

Living leaves of white oak, *Quercus alba*. Menands. July. This species forms minute compact tufts, so distinct and well defined that they might easily be mistaken for perithecia.

CLADOSPORIUM LETIFERUM, N. sp.

Spots dark brown, irregular, large, often involving the whole leaf; tufts epiphyllous, subeffused, olive green, the hyphae very short, almost obsolete; spores oblong-pyriform, uniseptate or biseptate, slightly constricted at the septa, .0008 to .0012 inch long, .0003 broad.

Living leaves of poplar, *Populus tremuloides*. Keene. June.

This fungus often kills the leaves it attacks. When the spores have a single septum the two cells are unequal; when they have two septa the middle cell is generally larger than the terminal ones. The species differs from *C. Asteroma* in the shape and character of the spores and in its more effused habit.

CERCOSPORA ACETOSELLÆ, Ellis.

Living leaves of yellow dock, *Rumex crispus*. Elizabethtown. September.

Our specimens differ slightly from the type and may be designated variety *maculosa*. Spots numerous, small, suborbicular, grayish, surrounded by an elevated margin and a brownish-red border, spores at length with one or two septa.

MACROSPORIUM TOMATO, Cke.

Decaying fruit of tomato. Menands. October.

PILACRE ORIENTALIS, B. & Br.

Dead bark of alders, *Alnus incana*. Elizabethtown. September

In our specimens the sporiferous branches are sometimes elongated and flexuous and the young plant wholly white, in which respects they differ from the typical form of the species. But the stem soon becomes cinereous and finally the whole plant is umber-brown. Young plants sometimes grow from the base of old ones, sometimes from the head.

GRAPHIUM SORBI, N. sp.

Spots generally small, one or two lines broad, orbicular, definite, reddish-brown; stems hypophyllous, rather stout, equal or slightly tapering upward, the component flocci diverging and colorless at the apex; spores oblong, hyaline, .0008 to .001 inch long, .00025 to .0008 broad, sometimes with two to four minute nuclei.

Living leaves of mountain ash, *Pyrus Americana*. Adirondack mountains. July.

ISARIOPSIS ALBOROSELLA, Sacc.

Living or languishing leaves of chickweed, *Cerastium vulgatum*. Keene. July.

I find only uniseptate spores in our specimens.

FUSARIUM LYCOPERSICI, Sacc.

Fruit of the tomato. Menands. August.

A malady affects the fruit of the tomato. In the vicinity of Albany, the past season, the first ripening tomatoes were found almost invariably to be soft and decaying. A brown or discolored spot, usually located at the flowering end of the fruit, appears to be the origin and center of the disease. This spot often makes its appearance while the fruit is yet green. This Fusarium soon develops on this spot, appearing in the form of minute pallid dots, or in more effused patches which are of a pinkish or an orange hue. With advancing age it assumes a more or less brownish hue. If the affected tomato be cut open its inner flesh often exhibits a peculiar purplish tint. In a short time the white flocculent threads of the fungus appear on the cut surface, soon to be followed by the more waxy and colored patches of spores, thus showing that the mycelium has permeated the diseased flesh of the tomato. The affected tomatoes become very watery and any surface on which a diseased tomato lies, soon becomes wet from the exuding juices. From the constancy with which this fungus appears in connection with the disease, it would appear that it might be regarded as the cause of the decay, but there are circumstances that point to some more subtle agent of the mischief. Further investigation is necessary to determine satisfactorily the source of the disease.

PEZIZA TRUNCICOMES, Ger.

Decaying prostrate trunks of deciduous trees. Knowersville, Albany county. May.

PEZIZA ALBOVIOLASCENS, A. & S.

Old chestnut rails. Conklingville. September.

HELOTIUM EPISPHÆRICUM, N. sp.

Receptacle minute, .012 to .02 inch broad, gregarious, subsessile, at first subhyaline, then reddish-yellow, the disk nearly plane, asci subcylindrical; spores oblong or lanceolate, .0002 to .00025 inch long, .0001 to .00012 broad.

On old *Hypoxylon Morsei*. Elizabethtown. September.

It resembles *H. citrinum* in habit, but is very much smaller.

ASCOMYCES LETIFER, N. sp.

Indefinite, hypophyllous, often occupying the whole lower surface of the leaf and suffusing it with a glaucous bloom; asci cylindrical, obtuse or subtruncate, .0016 to .002 inch long, .0006 to .0008 broad; spores minute, varying from narrowly elliptical to subglobose, .00016 to .0002 inch long, .00008 to .00012 broad.

Living leaves of mountain maple bush, *Acer spicatum*. Elizabethtown. June.

The species is very distinct from *A. polysporus*, which forms definite spots. The attacked leaves soon turn black, wither and die. Sometimes all the leaves on a branch are affected and the fungus then causes a veritable blight.

ASCOMYCES RUBROBRUNNEUS, N. sp.

Spots definite, variable, small and suborbicular or large and irregular, sometimes confluent, usually concave above, convex below, dull reddish-brown above, paler below; asci oblong, truncate at the apex, .002 to .003 inch long, .0006 to .0009 broad; spores minute, subelliptical, .00012 to .00016 inch long, .0006 to .0008 broad.

Living leaves of red oak, *Quercus rubra*. Sandlake. September.

In some respects this approaches *A. alutarius*, from which the color of the spots, larger asci and different shape of the spores will distinguish it.

ERYSIPHE HORRIDULA, Lev.

Abundant on corn gromwell, *Lithospermum arvense*. Port Henry. June.

Our specimens were too young when collected to show the spore characters, and are to this extent doubtful.

CALOSPHÆRIA CILIATULA, Karst.

Dead trunks and branches of white birch, *Betula populifolia*. Menands. September.

VALSA THUJÆ, N. sp.

Pustules scattered, slightly prominent, closely covered by the epidermis; perithecia nestling in the inner bark, subcircinate, five to ten in a pustule; asci oblong-clavate, .0014 to .0016 inch long; spores allantoid, .0004 to .0005 inch long, .00008 to .0001 broad.

Dead branches of arbor vitae, *Thuja occidentalis*. Elizabethtown. September.

VALSA EXUDANS N. sp.

Perithecia collected in a cortical stroma, thin, crowded, angular, closely covered by the pustulately elevated, irregularly ruptured epidermis, ostiola obscure or concealed beneath the defiled epidermis; asci very slender, cylindrical, .0016 inch long, .00016 broad; spores minute, oblong, straight, colored, .0002 inch long, oozing out and staining the surface of the matrix.

Dead bark of alders, *Alnus incana*. Elizabethtown. September.

This is an anomalous species and does not agree well with the generic characters. The straight, colored and oozing spores are unusual and peculiar features.

VALSELLA ADHERENS, Fckl.

Corticated trunk and branches of white birch, *Betula populifolia*. Sandlake. September.

In our plant the disk is often whitish or grayish from the adhering remains of the epidermis; the perithecia are five to twelve in a pustule and the spores are colored in the mass. It is apparently a variety of the species and may be called var. *Americana*.

VALSELLA LASCHII, Sacc.

Dead whitened twigs of *Acer spicatum*. Port Henry. June.

In our specimens the black stroma is apparent through the translucid epidermis, and the white disk, though small, is plainly seen by contrast. The asci are very broad, .0016 to .002 inch long, .0005 to .0006 broad. This form may be designated as var. *acerina*.

DIATRYPELLA QUERCINA, Nits.

Dead branches of thorn, *Crataegus tomentosa*. Elizabethtown. September.

Although occurring on thorn branches, there does not appear to be any good characters for separating this fungus from the species to which I have referred it.

SPHÆRELLA MINUTISSIMA, N. sp.

Perithecia very numerous, occupying the whole lower surface of the leaf, very minute, .002 to .0025 inch broad, veiled by the epidermis, black; asci oblong or slightly narrowed toward the apex, .0016 to .002 inch long, .0003 to .0004 broad; spores crowded, oblong, straight, obscurely septate in the middle, .0006 to .0007 inch long, .00016 broad.

Dead leaves of alder, *Alnus incana*. Adirondack mountains. June.

The perithecia are scarcely visible to the naked eye. The affected leaves remain on the branches through the winter. They had not yet fallen in June.

SPHÆRELLA ANLICOLA, N. sp.

Perithecia small, .0035 to .0045 inch broad, hypophyllous, clustered or scattered, naked, black; asci oblong or subclavate, .002 to .0025 inch long, .0005 to .0006 broad; spores crowded, lanceolate, uniseptate, often slightly curved, .0009 to .0011 inch long, .00016 broad.

Dead leaves of alder, *Alnus viridis*. Mt. Marcy. June. The spores are narrowed toward one end and septate in the middle. The species is evidently distinct from *S. Alni viridis* in its larger exposed perithecia, in the shape of its spores and in wanting a dematiaceous stroma. Apparently the same species was found near Elizabethtown, but without fruit.

SPHÆRELLA PONTEDERIÆ, N. sp.

Spots rather large, six to ten lines long, oblong or elliptical, sometimes confluent, brown above, blackish brown or grayish brown below; perithecia minute, .003 inch broad, hypophyllous, black; asci oblong or subfusiform, .002 to .0025 inch long, .0005 broad; spores crowded or biseriate, oblong-clavate, uniseptate, sometimes quadrinucleate, .0006 to .0008 inch long, .0002 to .00025 broad.

Languishing leaves of pickerel weed, *Pontederia cordata*. Whitehall, Washington county. September.

Apparently related to *S. Caladii*, but with longer spores and different spots.

SPHÆRELLA PINSAPO, Thum.

Fallen leaves of arbor-vitae. Port Henry. June.

DIAPORTHE SULPHUREA, Fckl.

Dead stems and branches of hazelnut, *Corylus rostrata*. Gansevoort. September.

This species is easily recognized by the beautiful yellow spurious stroma that extends everywhere under the epidermis of the affected branches.

DIAPORTHE (CHOROSTATE) FARINOSA, N. sp.

Stroma somewhat pulverulent or mealy, dull buff colored, formed of the slightly changed inner bark, erumpent in a minute slightly exserted disk; perithecia valsoid, irregularly circinating, generally four to ten in a circle, the clusters subconfluent, ostiola black, dotting the prominent pulverulent buff colored or at length brownish disk; asci subcylindrical, .0024 to .003 inch long, .00035 to .0004 broad; spores crowded or biseriate, oblong or subfusiform, uniseptate, generally quadrinucleate, .0006 to .0008 inch long, .00016 to .0002 broad.

Dead branches of basswood, *Tilia Americana*. Argusville. July.

This species approaches *D. furfuracea* in its pulverulent stroma, but it differs in its prominent disk, which renders the affected branches rough to the touch, and in its smaller quadrinucleate crowded or biseriate spores. From *D. velata* it is easily separated by the entire absence of any black circumscribing line or blackened surface. It evidently belongs to the subgenus Chorostate, but the clusters of perithecia are so numerous and so closely and almost confluently placed that they form an almost continuous stratum which surrounds the branch and extends long distances under the epidermis.

MELANCONIELLA DECORAHENSIS, Ellis.

Dead bark of white birch, *Betula populifolia*. Gansevoort. September.

In the typical form the disk is described as "sordid gray." In our specimens, both it and the stroma are yellowish green and pulverulent. On the smaller branches the disk is smaller and the ostiola are less prominent than on the larger ones. When the epidermis is torn away the perithecia adhere to it. The young spores are colorless and subacute at each end. The mature ones are colored, obtuse and constricted at the septum.

The conidia ooze out and form orbicular black patches one to two lines broad. These are very conspicuous by reason of the contrast between their color and the white color of the matrix.

VALSARIA NIESSLII, Sacc.

Dead bark of white birch, *Betula populifolia*. Menands. September.

LEPTOSPHÆRIA ASPARAGI, N. sp.

Perithecia broadly conical, .01 to .014 inch broad, at first covered by the pierced epidermis, then naked, black; asci clavate or cylindrical, short pedicellate, .003 to .004 inch long, .00045 to .0006 broad; spores oblong or subfusiform, crowded, .0008 to .0012 inch long, .0003 broad, at first colorless and triseptate, then slightly colored and five-septate, constricted at the septa.

Dead stems of asparagus. Menands. October.

MASSARIA PYRI, Otth.

Bark of pear and apple trees. Albany. May.

PLEOSPORA SHEPHERDIÆ, N. sp.

Perithecia scattered, small, .014 to .018 inch broad, covered by the epidermis, erumpent, black; asci cylindrical, .006 to .008 inch long, .0006 broad; spores uniseriate, oblong, generally triseptate, rarely five-septate, with one or two longitudinal septa, constricted in the middle, colored, .0008 to .001 inch long, .0003 to .0004 broad.

Dead branches of *Sherpherdia Canadensis*. Port Henry. June.

DOTHIDELLA ALNI, N. sp.

Stroma orbicular, one to three lines broad, thin, convex and black above, concave, brown or grayish-black and papillosely rugulose below; asci cylindrical; spores ovate-elliptical, obscurely uniseptate near one end, colorless, .0006 to .0008 inch long, .0003 to .00035 broad.

Dead leaves of *Alnus viridis*. Mt. Marcy. June.

The spores are very unequally divided, the smaller cells appearing like an umbo.

LOPHIOTREMA VESTITA, N. sp.

Perithecia closely gregarious, small, .014 to .02 inch broad, sunk in the wood, erumpent, conical, clothed with a slight tawny-ferruginous pulverulent tomentum, ostiola naked, black, subterete or compressed; asci clavate, .006 to .007 inch long, .0006 to .0007 broad; spores crowded, subfusiform, at first biconic and uniseptate, then triseptate or quadrinucleate, constricted in the middle, colorless, .0012 to .0016 inch long, .0003 to .0004 broad.

Decorticated wood of poplar, *Populus tremuloides*. Gansevoort. September.

Readily distinguished by the tawny, pulverulent tomentum of the perithecia.

LOPHIOTREMA PARASITICA, N. sp.

Perithecia crowded, subsuperficial, .014 to .02 inch broad, clothed with a minute subcervine pulverulent tomentum, becoming blackish-brown with age, the ostiola prominent, subterete or compressed, clothed like the perithecia; asci subclavate, .005 to .006 inch long, .0006 to .0007 broad; spores crowded, at first biconic, then triseptate, constricted in the middle, colorless, .0012 to .0016 inch long, .0003 broad.

On old *Hypoxylon Morsei*. Elizabethtown. September.

This and the preceding species appear to be peculiar by reason of the pulverulent tomentum of the perithecia. They would seem to constitute a distinct section of the genus.

(D.)

NOTES AND OBSERVATIONS

THALICTRUM PURPURASCENS, L.

A singular Thalictrum was found on the shore of Lake Champlain, near Port Henry. Its leaves were thin and delicate, quite small, and five to seven-lobed, resembling those of *Thalictrum dioicum*. Some had a general petiole, others had none. The flowers were almost dioecious, the anthers resembling those of *Thalictrum purpurascens*, though perhaps they were a little more slender and more strongly mucronate. The plants had the general aspect of *T. purpurascens*, except the leaves, which resembled more those of *T. dioicum*. *T. dioicum* in the same locality was past flowering, it being now the middle of June, and had developed its fruit to full size. Whether this plant is a hybrid between *T. dioicum* and *T. purpurascens*, or a variety of the latter, or a distinct species, is a question to be solved. Similar forms have been regarded by Professor Trelease as hybrids.

NASTURTIUM LACUSTRE, Gr.

Black creek, near Bergen.

ARABIS DRUMMONDII, Gr.

Port Henry. A form with spreading pods.

GEUM RIVALE, L.

A form with pale yellow or cream-colored flowers was collected in the Adirondack mountains. It is not rare in that locality.

RIBES CYNOSBATI, L.

A very lax form of this plant occurs at Cascadeville, in the Adirondack mountains. The branches are long and slender, and the flowers are much scattered and very long pedicelled. It is associated in this locality with *Ribes rotundifolium*, *R. lacustre* and *R. prostratum*. All were in flower at the same time. The last species occurs abundantly at Lower Ausable pond, where nearly all the young fruit of a large patch was found infested by *Sphaerotheca Mors-uvae* Schw., which fungus is probably a mere variety of *Sphaerotheca pannosa* Lev.

ASTER SAGITTIFOLIUS, Willd.

This fine aster has not hitherto been represented in the herbarium. It is recorded in the New York State Flora as a rare plant in New York. Fine specimens were found near Piffard, Livingston county, and it occurs in great abundance along the railroad between that place and Rochester.

ASTER ACUMINATUS, Mx.

Glen Cove, Long Island. *J. A. Bisky.* A very noticeable station for this mountain-loving plant.

SOLIDAGO ULIGINOSA, Nutt.

Bergen swamp. A very slender form, with unusually narrow and entire leaves, and a rather short panicle, sometimes slightly recurved.

SYMPHORICARPUS RACEMOSUS, Mx.

Near Canajoharie. The variety *pauciflorus* in rocky places, near Port Henry.

POLYGONUM TENUE, Mx.

Summit of Cobble hill, near Elizabethtown.

SALIX CANDIDA, Willd.

Occurs sparingly near Guilderland Station. *H. C. Gordinier.*

ABIES ALBA, Mx.

Newcomb, Essex county. It also occurs in North Elba, but in all the localities observed by me the trees were growing in cleared land, and had evidently sprung up since the forests were cut.

ORCHIS SPECTABILIS, L.

A form with white flowers. Schaghticoke. *H. C. Gordinier* Mr H. L. Griffis also sends a white-flowered form of the flowering wintergreen, *Polygala paucifolia*, from Binghamton.

CLINTONIA BOREALIS, Raf.

This plant grows almost everywhere in the Adirondack mountains, and in some places it is exceedingly thrifty and vigorous.

It is not uncommon to find plants with one or even two lateral umbels in addition to the terminal one. The number of flowers in the lateral umbels is generally less than the number in the terminal umbel of the same plant, and when there are three umbels the lowest one has the smallest number of flowers. They vary usually from three to six in the lateral umbels. In one specimen there were six flowers in the lateral and twelve in the terminal umbel. One plant had five large leaves.

SCLERIA VERTICILLATA, Muhl.

A small form with but three clusters of flowers is common in Bergen swamp.

CAREX ALOPECOIDEA, Tuckm.

This species is rare in the eastern part of the State. It occurs near Lansingburg. *E. C. Howe* and *H. C. Gordinier.*

CAREX FLAVA, L.

An extremely variable species, even in the same locality and apparently surrounded by the same circumstances and influences. At Hewitt's pond in the Adirondack mountains, specimens were collected which were but four or five inches high and which bore but a single small fertile spike each. Near these, others were found which were fifteen or sixteen inches high and bore five fertile spikes each. Another form, intermediate in size, had three fertile spikes, two approximate and a lower distinct one.

CAREX LONGIROSTRIS, Torr.

Rocky places. Keene. A rare species with us.

ALOPECURUS GENICULATUS, L.

Green Island. *H. C. Gordinier.* Lansingburg. *E. C. Howe.*

These specimens are nearly erect, not geniculate at the base. On the other hand, specimens of *Alopecurus pratensis*, a species described as erect, were collected by myself near Albany, in which the stems were decidedly geniculate at the base, thus exactly reversing this character as given in the descriptions.

AGROSTIS VULGARIS, With.

A form with very many of the flowers developed into leafy buds. Hewitts pond.

PANICUM CRUS-GALLI, L.

The form with dense panicles of awnless flowers is common in wet places about Warsaw, Wyoming county.

BOTRYCHIUM LANCEOLATUM, Angst.

Cascadeville, Adirondack mountains. June.

OMPHALIA UMBELLIFERA, L.

Not rare in the Adirondack mountains. Variety *abiegnus* grows on soft decayed wood of coniferous trees, and has a pale yellow pileus. Variety *alpinus* grows among mosses and on muck soil composed of decomposed vegetable matter. It usually occurs at high altitudes. It was plentiful in June on the summit of Mt. Marcy. In it the pileus and lamellae are bright yellow.

PHOLIOTA MYCENOIDES, Fr.

In thin woods at Conklingville a form was found having the pileus rugose.

LENZITES SEPIARIA, Fr.

A resupinate form, var. *dentifera*, occurs on spruce in the Adirondack mountains, in which form the lamellae anastomose, and are more or less toothed or lacerated, resembling an Irpex more than a Lenzites.

POLYPORUS VOLVATUS, Pk.

This singular species develops in May and June in the Adirondack mountains. When young it is slightly viscid. It is especially subject to the attacks of insects. In July most of the specimens will be found to be infested by them.

CREPIDOTUS HÆRENS, Pk.

Fine specimens of this rare species were found on ash and butternut near Sprakers. The pileus is sometimes slightly floccose-squamulose. The tough viscid pellicle is separable, and in drying the moisture disappears from the disk first, from the thin margin last.

HYDNUM GRAVEOLENS, Delast.

A singular Hydnum was found at Elizabethtown, in which the pileus was very uneven and everywhere coated with a whitish villosity or tomentum. It has the peculiar odor of *H. graveolens*, to which species we have referred it as variety *inæquale*.

PHLEBIA RADIATA, Fr.

Dead bark of wild bird cherry, *Prunus Pennsylvanica*. Conklingville. September. A thin cream-colored form corresponding nearly to variety *pallida Fr.* It sometimes forms extensive patches by the confluence of many individuals.

ODONTIA FIMBRIATA, Pers.

Decaying wood of poplar. Conklingville. September. A form with the subiculum thicker than usual and finely rimose. Variety *rimosa*.

PENIOPHORA NEGLECTA, Pk.

A wholly resupinate form occurs on red maple. *Acer rubrum*. Bergen.

CORTICIUM MARTIANUM, B. & C.

When well developed this is a highly colored and very showy species. At first a small orbicular tuft of strigose radiating hairs appears. The center of the tuft soon assume a reddish tint, which again changes to bright-red or scarlet and becomes waxy. The hymenium is now covered with irregular rugae or folds giving the plant the appearance of some species of Phlebia. With advancing age the hymenium loses its brilliancy and becomes tinged with brownish, grayish or olivaceous tints, but the margin retains for a longer time its bright-red color, which fades to gray on the extreme fimbriate edge. The mycelium is yellowish. Metuloids have been seen in some specimens, but they are rare.

SPHÆROPSIS MALORUM, Pk.

This has occurred on leaves of apple trees, but in this case with perithecia rather smaller than in the type.

MARSONIA JUGLANDIS, Sacc.

The species is quite variable, being both hypophyllous and epiphyllous, and occurring on small or large spots and with few or many nuclei.

SEPTOCYLINDRIUM RANUNCULI, Pk.

This has occurred on radical leaves of *Ranunculus abortivus*. Helderberg mountains. May.

RAMULARIA PLANTAGINIS, E. & M.

Variety *nigromaculans* Pk. Spots with a small grayish center and a broad blackish or blackish-brown margin. The fungus occurs on this blackish margin. Menands. October.

PERONOSPORA GANGLIFORMIS, De By.

Living leaves of *Sonchus asper.* Warsaw.

PEZICULA ACERICOLA, Pk.

Variety *gregaria* Pk. Receptacles small, gregarious. Bark of red maple, *Acer rubrum.* Karner. September.

RHYTISMA SALICINUM, Fr.

Fallen leaves of Salix Cutleri. Mt. Marcy. June. Fertile specimens.

REPORT OF THE BOTANIST.

REPORT OF THE BOTANIST.

To the Honorable the Board of Regents of the University of the State of New York:

GENTLEMEN.—I have the honor to communicate to you the following report:

In the prosecution of the work of completing and arranging the State Herbarium the past year, specimens of the plants of the State have been collected in the counties of Albany, Greene, Lewis, Oneida, Oswego, Rensselaer, Saratoga and Ulster. Specimens have also been contributed which were collected in the counties of Broome, Cayuga, Kings, Orleans, Rensselaer and Wayne. Specimens of one hundred and seventy species of plants have been added to the herbarium, of which twenty-seven were contributed by correspondents and one hundred and forty-three were collected by the botanist. Of those collected by the botanist, one hundred and five species are new to the herbarium and to the State flora. Among the added species are twenty-six flowering plants, some of which are introduced and possibly may not be sufficiently abundant and well-established to be properly considered a part of our flora, but all were found growing without cultivation and it was thought best to place the fact on record. A list of the added species is appended and is marked A.

The number of correspondents who have contributed specimens is seventeen. The contributed specimens of extralimital species are not included in the foregoing enumeration. A list of the names of the contributors, and of their respective contributions, is marked B.

In the eastern part of the State, the months of July, August and September were unusually favorable to the production of fleshy fungi, the Hymenomycetes, and special attention was given to the collection of these plants. They constitute a large percentage of the added species and among them are many that are considered new to science. In consequence of their evanescent colors, painted sketches were made of most of the new species while the plants were yet fresh. A record of the added species, together with descriptions of the new ones, is marked C.

Remarks concerning species previously known to belong to our flora and descriptions of new varieties are recorded in a chapter marked D.

The botanical reports have now become so numerous that an index to them is greatly needed, in order to facilitate reference to them and save time in consulting them. I have, therefore, prepared an index of the genera and species recorded in reports twenty-two to thirty-eight, inclusive. It is alphabetically arranged and is marked F.

Beaver dam is a body of water near to and connected with Beaver lake, in the eastern part of Lewis county. It was reported to me that the red-flowered variety of the white water lily, *Nymphæa odorota*, had been seen growing there. Wishing to obtain specimens of this interesting form, the locality was visited, but only the same form that was found last year in Mud pond was detected here. The external petals are tinged with red but the inner ones are white. The full red-flowered variety is yet a desideratum. There was found, however, in Beaver lake inlet, locally called "The Slough," a scarcely less interesting form of this plant. It has the very large flowers and leaves of the tuberous water lily, *Nymphæa tuberosa*, and yet the very distinct and pleasant fragrance of the white water lily. It is interesting, scientifically, because it tends to support the views of those botanists who consider these plants as mere forms of one species.

A form of the northern or Canadian blueberry, *Vaccinium Canadense*, in which the fruit is jet black and shining, was observed growing plentifully in the cleared land and pastures near Beaver lake. Thus, it happens that each one of our four common blueberries, which contribute to supply our markets with this excellent fruit, has its black-fruited variety, notwithstanding the general application of the name "blueberries." This variation is interesting and worthy of notice, because it indicates a tendency in these plants to vary in a part in which variation may be made the basis of useful improvement under proper treatment and culture. The fruit is the useful part of these plants and variation in it indicates capability of improvement in this direction. A similar variation has also been observed in the fruit of the black huckleberry, *Gaylussacia resinosa*. In it the fruit is commonly dull black without any bloom, but in the variety it is of a shining jet black and is readily distinguishable from the ordinary form. Dishonest berry pickers sometimes take advantage of the similarity in size and shape between this huckleberry and the black-fruited variety of the chokeberry, *Pyrus arbutifolia*. They mix the two fruits and the fraud is not likely to be detected till the taste reveals it. The flavor of large quantities of canned berries is sometimes spoiled by this reprehensible practice.

Mr. P. H. Dudley, civil engineer of the N. Y. C. and H. R. railroad, has, at my request, communicated to me some of the results of his investigations of the fungi destructive to wood. This is of such great practical importance that I have added a copy of his communication to this report. It is marked E.

Very respectfully submitted.

CHAS. H. PECK.

ALBANY, *December* 6, 1887.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Ranunculus septentrionalis *Poir.*
Brassica campestris *L.*
Lunaria biennis *L.*
Dianthus barbatus *L.*
Levisticum officinale *Koch.*
Valerianella olitoria *Poll.*
Aster junceus *Ait.*
Phlox maculata *L.*
Myosotis arvensis *Hoffm.*
M. collina *Hoffm.*
Cuscuta tenuiflora *Engelm.*
Physalis lanceolata *Mx.*
Nepeta grandiflora *Bieb.*
Plantago Media *L.*
Aristolochia Clematitis *L.*
Euphorbia Esula *L.*
Salix amygdaloides *Ander.*
Potamogeton Spirillus *Tuckm.*
P. Zizii *M. & K.*
P. Hillii *Morong.*
P. marina *L.*
Eleocharis diandra *Wright.*
Panicum nervosum *Muhl.*
Deyeuxia Porteri *Vasey.*
Eatonia Dudleyi *Vasey.*
Bromus arvensis *L.*
Lepiota granosa *Morg.*
L. arenicola *Pk.*
Tricholoma resplendens *Fr.*
T. Columbetta *Fr.*
T. intermedium *Pk.*
T. terriferum *Pk.*
T. tricolor *Pk.*
T. fuligineum *Pk.*
T. putidum *Fr.*
Clitocybe subsimilis *Pk.*
C. cæspitosa *Pk.*
C. sulphurea *Pk.*
C. tortilis *Bolt.*
Collybia scorzonerea *Batsch.*
C. hariolorum *D. C.*
C. strictipes *Pk.*
C. alba *Pk.*
Omphalia subgrisea *Pk.*
Mycena capillaripes *Pk.*
M. crystallina *Pk.*
Entoloma sericeum *Bull.*
E. flavoviride *Pk.*
Clitopilus erythrosporus *Pk.*
C. conissans *Pk.*
C. cæspitosus *Pk.*
Pholiota minima *Pk.*
Inocybe fibrillosa *Pk.*
I. subfulva *Pk.*
I. violaceifolia *Pk.*
I. asterospora *Quel.*
I. margarispora *Berk.*
I. commixta *Bres.*
Inocybe agglutinata *Pk.*
I. nigridisca *Pk.*
I. vatricosa *Fr.*
Hebeloma crustuliniforme *Bull.*
H. longicaudum *Pers.*
Flammula lubrica *Fr.*
F. subfulva *Pk.*
Naucoria paludosa *Pk.*
N. unicolor *Pk.*
N. triscopoda *Fr.*
N. carpophila *Fr.*
Galera inculta *Pk.*
Agaricus comptulus *Fr.*
Stropharia albocyanea *Desm.*
Psilocybe clivensis *B. & Br.*
P. senex *Pk.*
Deconica subviscida *Pk.*
Psathyrella minima *Pk.*
Cortinarius balteatus *Fr.*
C. pluvius *Fr.*
C. muscigenus *Pk.*
C. brevipes *Pk.*
C. brevissimus *Pk.*
C. albidifolius *Pk.*
C. spilomeus *Fr.*
C. flavifolius *Pk.*
C. griseus *Pk.*
C. badius *Pk.*
C. subflexipes *Pk.*
C. paleaceus *Fr.*
C. rigidus *Fr.*
Hygrophorus Lauræ *Morg.*
Lactarius aspideus *Fr.*
L. maculatus *Pk.*
Russula lepida *Fr.*
R. adulterina *Fr.*
R. atropurpurea *Pk.*
Boletus speciosus *Frost.*
B. auriflammeus *B. & C.*
B. purpureus *Fr.*
B. hemichrysus, *B. & C.*
B. glabellus *Pk.*
B. variipes *Pk.*
B. indecisus *Pk.*
B. albellus *Pk.*
Polyporus flavovirens *B. & R.*
P. rimosus *Berk.*
P. mutans *Pk.*
P. pineus *Pk.*
Merulius Ravenelii *Berk.*
M. himantioides *Fr.*
Hydnum fasciatum *Pk.*
Irpex nodulosus *Pk.*
Radulum Pendulum *Fr.*
Corticium olivaceum *Fr.*
Clavaria albida *Pk.*
C. densa *Pk.*
Geaster Schæfferi *Vitt.*

Geaster vittatus *Kalchb.*
Sphæropsis carpinea *S. & Br.*
Cercospora Gentiana *Pk.*
Oöspora Cucumeris *Pk.*
Sporendonema myophilum *Sacc.*
Zygodesmus violaceofuscus *Sacc.*

Not new to the Herbarium.

Nelumbium luteum *Willd.*
Nymphæa odorata *Ait.*
Stellaria longifolia *Muhl.*
Vicia sativa *L.*
Fragaria Virginiana *Duchesne.*
Rubus villosus *Ait.*
Galium circæzans *Mx.*
G. trifidum *L.*
Aster diffusus *Ait.*
A. Tradescanti *L.*
Erigeron annuus *Pers.*
Solidago rugosa *Mill.*
Gaylussacia resinosa *T. & G.*
Fraxinus viridis *Mx.*
Asclepias tuberosa *L.*
Symphytum officinale *L.*
Myosotis palustris *With.*
Epiphegus Virginiana *Bart.*
Juncus acuminatus *Mx.*
J. marginatus *Rost.*
J. Canadensis *Gay.*
J. tenuis *Willd.*
Cyperus filiculmis *Vahl.*
Scirpus polyphyllus *Vahl.*
S. Torreyi *Olney.*
Eragrostis capillaris *L.*
Panicum clandestinum *L.*
Botrychium lanceolatum *Angst.*
Amanita phalloides *Fr.*
A. rubescens *Fr.*
Lepiota granulosa *Batsch.*
L. illinita *Fr.*
Tricholoma Peckii *Howe.*
T. vaccinum *Pers.*
T. fumosoluteum *Pk.*
Clitocybe nebularis *Batsch.*
C. laccata *Scop.*
Collybia lentinoides *Pk.*
Clitopilus prunulus *Scop.*
Inocybe rimosa *Bull.*
Marasmius præacutus *Ellis.*
M. salignus *Pk.*
Hygrophorus pratensis *Fr.*
Clavaria stricta *Pers.*
C. crispula *Fr.*
C. pistillaris *L.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Prof. W. R. Dudley, Ithaca, N. Y.

Lunaria biennis *L.*
Fragaria Virginiana *Duch.*
Aster junceus *Ait.*
A. diffusus *Ait.*
A. Tradescanti *L.*
Fraxinus viridis *Mx.*
Myosotis arvensis *Hoffm.*
M. collina *Hoffm.*
Cuscuta tenuiflora *Engl.*
C. epilinum *Weihe.*
Plantago Media *L.*
Aristolochia Clematitis *L.*
Euphorbia Esula *L.*
Salix amygdaloides *And.*
Juncus Canadensis *Gay.*
Potamogeton Zizii *M. & K.*
P. Spirillus *Tuckm.*
P. Hillii *Mor.*
P. marina *L.*
Panicum nervosum *Muhl.*
Deyeuxia Porteri *Vasey.*
Eatonia Dudleyi *Vasey.*

Prof. B. D. Halsted, Ames, Iowa.

Sphærotheca lanestris *Hark.*
Cercospora rosæcola *Pass.*
Peronospora Claytoniæ *Farl.*
Puccinia prunispinosæ *Pers.*
Uromyces Lupini *B. & C.*
U. Betæ *Kuhn*
Æcidium Phaceliæ *Peck.*

Prof. W. G. Farlow, Cambridge, Mass.

Puccinia Malvacearum *Mont.*
Ustilago antherarum *Fr.*
Monilia Linhartiana *Sacc.*
Phragmotrichum Chailletii *K. & S.*
Exoascus Wiesneri *Rathay.*
Geoglossum atropurpureum *Pers.*
Microsphæria Vaccinii *C. & P.*
Leptosphæria Silenes-acaulis *De N.*
Dothidea Wittrockii *Eriks.*

Prof. H. A. Green, Troy, N. Y.

Umbilicaria Muhlenbergii *Tuckm.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Polyporus sulphureus *Fr.*
Perichæna corticalis *Batsch.*
Nidularia pulvinata *Schw.*

E. C. Howe, M. D., Lansingburgh, N. Y.

Eleocharis diandra *Wright.*
Bromus arvensis *L.*
Agropyrum caninum *R. & S.*

H. C. Gordinier, M. D., Troy, N. Y.

Bromus arvensis *L.*
Aristolochia Clematitis *L.*

Harold Wingate, Philadelphia, Penn.

Orthotricha microcephala *Wing.*

P. H. Dudley, New York.

Lenzites striata *Sw.*
L. abietina *Fr.*
Lentinus Nicaraguensis *B. & C.*
Trametes Pini *Fr.*

W. C. Stevenson, Jr., Philadelphia, Penn.

Lepiota Americana *Peck.*

J. A. Lintner, Albany, N. Y.

Reticularia Lycoperdon *Bull.*

George T. Fish, Rochester, N. Y.

Nulumbium luteum *Willd.*

H. L. Griffis, Binghamton, N. Y.

Sporendonema myophilum *Sacc.*

A. P. Morgan, Preston, Ohio.

Hydnum casearum *Morg.*
Hydnum alboviride *Morg.*

C. J. Curtis, Lincolnton, N. C.

Fistulina hepatica *Fr.*
Hypomyces hyalinus *Schw.*
Boletus flexuosipes *Pk.*
Lactarius atroviridis *Pk.*
Boletus leprosus *Pk.*
Boletus dictyocephalus *Pk.*

Rev. J. L. Zabriskie, Flatbush, N. Y.

Polyporus rimosus *Berk.*

S. H. Wright, M. D.

Polyporus Curtisii *Berk.*
P. sanguineus *Fr.*
Clathrus columnatus *Bosc.*

(C.)

PLANTS NOT BEFORE REPORTED.

Ranunculus septentrionalis, *Poir.*

In wet places, rarely in pine woods. Albany and Rensselaer counties. Common. June. I have not seen, in the vicinity of Albany, the true *R. repens,* with which this species has been confused.

Brassica campestris, *L.*

About houses and in cultivated grounds. Menands, Albany county. June. The specimens belong to variety *colza,* which has probably been introduced in "bird seed."

Lunaria biennis, *L.*

Escaped from cultivation at Ithaca. May. *Prof. W. R. Dudley.*

Dianthus barbatus, *L.*

Established in woods near Ithaca. June and July. *Dudley.*

Levisticum officinale, *Koch.*

Occasionally established by roadsides and in waste places. Cayuga county. *Dudley.* Sandlake, Rensselaer county. June.

Valerianella olitoria, *Poll.*

Frontenac island, Cayuga lake. May. *Dudley.* Introduced and synonymous with *Fedia olitoria* Vahl.

Aster junceus, *Ait.*

Sphagnous swamps. Round marsh, Dryden. September. *Dudley.*

Phlox maculata, *L.*

Roadsides. Sandlake. June. Probably introduced in this locality, or escaped from cultivation, but the plants were growing remote from any dwelling.

Myosotis arvensis, *Hoffm.*

Ithaca. May and June. *Dudley.*

Myosotis collina, *Hoffm.*

Ithaca. May. *Dudley.*

Cuscuta tenuiflora, *Engelm.*

Near Union Springs. Growing on peppermint, *Mentha piperita.* August and September. *Dudley.*

Physalis lanceolata, *Mx.*

Cultivated grounds. Menands. Our plant is well described in the Manual under the name *Physalis Pennsylvanica.* It has probably been introduced from the south or west, but is very persistent.

Nepeta grandiflora, *Bieb.*

Roadsides. Menands. September. Introduced.

Plantago Media, *L.*

University grounds, Ithaca. June. *Dudley.*

Aristolochia Clematitis, *L.*

Lansingburgh, Rensselaer county. *H. C. Gordinier.* Union Springs. June. *Dudley.* Introduced.

Euphorbia Esula, *L.*

Groton. June and July. *Dudley.*

Salix amygdaloides, *Ander.*

Fall creek, Eddy pond, Cayuga lake, Cayuga marshes, etc. Abundant. May. *Dudley.*

Potamogeton Spirillus, *Tuckm.*

Cayuta lake. August. *Dudley.* Lower Saranac lake, Essex county. Sandlake.

Two forms occur. In one the submersed leaves are rather long and straight; in the other they are shorter and somewhat recurved, and give the plant a peculiar appearance. The Cayuta-lake specimens are very small, being but one or two in. long.

Potamogeton Zizii, *M. & K.*

Fall creek. August and September. *Dudley.* Normanskill creek near Kenwood, Albany county.

Potamogeton Hillii, *Morong.*

Malloryville. July. *Dudley.*

Potamogeton marina, *L.*

Near the outlet of Seneca lake. July. *Dudley.*

Eleocharis diandra, *Wright.*

Lansingburgh. *E. C. Howe.*

Panicum nervosum, *Muhl.*

Woods near White church. July. *Dudley.* Cold Spring, Putnam county, and Adirondack mountains.

Deyeuxia Porteri, *Vasey.*

Thatcher's pinnacle, West Danby. August. *Dudley.* This is *Calamagrostis Porteri* of the Manual. It is a rare and local species.

Eatonia Dudleyi, *Vasey.*

South hill. June. *Dudley.* The specimens placed in the State Herbarium by Dr. Torry, and labeled *Kœleria Pennsylvanica,* belong to this species, which has until recently been confused with *Eatonia*

Pennsylvanica. The characters by which it is separated from *E. Pennsylvanica* are, according to the author of the species, "its slender culms and panicle, the very short cauline leaves, the longer and wider lower glume, the more obtuse upper one and the shorter obtuser flowering glumes." The flowers have a peculiarly blunt appearance by which the plant may be easily recognized.

Bromus arvensis, *L.*

Troy. *Gordinier* and *Howe.* Sparingly introduced. June.

Lepiota granosa, *Morg.*

Prostrate trunks of trees, old stumps and decayed wood. Catskill mountains. September.

Our specimens do not agree rigidly with the description of the species to which we have refered them. The pileus is either obtuse or umbonate, even or radiately rugose-wrinkled, and is generally even and regular on the margin. The stem also is either equal or slightly thickened at the base, but these variations are not of specific importance. The flesh of the stem is yellowish as in *Lepiota amianthinus* to which this species is closely related, both in color and structure, but from which it may be distinguished by its habitat, its larger size and its entire membranous persistent annulus.

Lepiota arenicola, *n. sp.*

Pileus at first broadly conical, then convex or nearly plane, obscurely punctate with minute granular squamules, whitish or cinereous, substriate and crenulate on the margin; lamellæ broad, subventricose, distant, free, white; stem slender, equal, stuffed, glabrous, whitish, the annulus imperfect, obsolete or quickly evanescent; spores oblong or subfusiform, acute at one end, .0005 to .0006 in. long, .0002 to .00024 broad.

Pileus 3 to 6 lines broad; stem 8 to 12 lines long, about 5 lines thick.

Sandy soil. Karner, Albany county. August.

The spores indicate an affinity of this species with *L. metulæspora*, of which it might be regared as a dwarf variety, but it differs in its smaller size, more expanded pileus, distant lamellæ and glabrous stem. The mycelium binds the sand into a globose mass at the base of the stem.

Tricholoma resplendens, *Fr.*

Thin woods. Catskill mountains. September.

Tricholoma Columbetta, *Fr.*

Woods. Selkirk, Albany county. August.

Tricholoma intermedium, *n. sp.*

Pileus thin, campanulate, obtuse, glabrous, slightly viscid when moist, greenish-yellow, flesh white; lamellæ crowded, free or slightly adnexed, white; stem equal, firm, glabrous, white; spores broadly elliptical, .0002 in. long, .00016 broad.

Pileus 2 to 3 in. broad; stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods. Catskill mountains. September.

This species resembles some forms of *T. equestre*, from which it is separated by its white lamellæ. It appears to be intermediate between that species and *T. sejunctum* from which its glabrous pileus and crowded lamellæ distinguish it.

Tricholoma terriferum, *n. sp.*

Pileus broadly convex or nearly plane, irregular, often wavy on the margin, glabrous, viscid, pale alutaceous, generally soiled with adhering particles of earth carried up in its growth, flesh white, with no decided odor; lamellæ thin crowded, slightly adnexed, white, not spotted or changeable; stem equal, short, solid, white, floccose-squamulose at the apex; spores minute, subglobose, .00012 in. long.

Pileus 3 to 4 in. broad; stem 1 to 1.5 in. long, 6 to 8 lines thick.

Woods. Catskill mountains. September.

This and the next preceding species belong to the section Limacina.

Tricholoma tricolor, *n. sp.*

Pileus broadly convex or nearly plane, sometimes slightly depressed in the center, firm, dry, obscurely striate on the margin, pale alutaceous, inclining to russet, flesh whitish; lamellæ thin, narrow, close, adnexed, pale yellow, becoming brown or purplish-brown in drying; stem stout, short, firm, tapering upwards from the thickened or subbulbous base, white; spores broadly elliptical or subglobose, .0003 in. long.

Pileus 2 to 4 in. broad; stem 2 to 3 in. long, 6 to 12 lines thick.

Woods. Selkirk. August.

Remarkable for its varied colors and for the peculiar hue assumed by the lamellæ in the dried state.

Tricholoma fuligineum, *n. sp.*

Pileus convex or nearly plane, obtuse, often irregular, dry, minutely squamulose, sooty-brown, flesh grayish, odor and taste farinaceous; lamellæ subdistant, uneven on the edge, cinereous, becoming blackish in drying; stem short, solid, equal, glabrous, cinereous; spores oblong, elliptical, .0003 in. long, .00016 broad.

Pileus 1 to 2.5 in. broad; stem 1 to 1.5 in. long, 3 to 5 lines thick.

Among mosses in open places. Catskill mountains. September.

This and the next preceding species belong to the section Genuina.

Tricholoma putidum, *Fr.*

Under pine trees. Catskill mountains. September.

Our specimens agree accurately with the description of *T. putidum*, except that the pileus is not umbonate; but this character is limited by Fries in Icones Selectæ to young plants.

Clitocybe subsimilis, *n. sp.*

Pileus at first conical or subturbinate, then plane, nearly obconical, soft, fleshy, pure white, the margin at first involute and somewhat tomentose, then even or marked with irregular ridges, as if from matted tomentum, flesh white, taste mild; lamellæ in the young plant adnate, in the adult, decurrent, subdistant, often branched, white, the interspaces venose; stem equal or merely subbulbous, by no means obclavate, solid, soft, elastic, white; spores broadly elliptical or subglobose; .0002 to .00025 in. long, .00016 to .0002 broad.

Pileus 1 to 1.5 in. broad; stem 1 to 2 in. long, 2 to 4 lines thick.

Under pine trees. Catskill mountains. September.

This species is closely related to *Clitocybe clavipes*, of which there is said to be a white variety. I have separated our plant not only because of its pure white color, but also because of its peculiar stem, which is not at all obclavate as in *C. clavipes*, though sometimes it is slightly and abruptly bulbous. Its resemblance to *C. clavipes* has suggested the specific name. It is very unlike *C. obbata* in its dry pileus and subdistant lamellæ.

Variety *monstrosa*. Lamellæ reticulately branched or anastomosing, causing the hymenium to appear porous either wholly or in part.

With the typical form.

Clitocybe cæspitosa, *n. sp.*

Pileus thin, infundibuliform, often irregular, slightly silky, hygrophanous, grayish brown when moist, subcinereous or argillaceous when dry; lamellæ narrow, close, decurrent, somewhat branched, white; stem equal, stuffed or hollow, silky, white; spores minute, subelliptical, .00012 to .00016 in. long.

Pileus 1 to 1.5 in. broad; stem about 1 in. long, 2 to 3 lines thick.

Thin woods. Catskill mountains. September.

The plant is remarkable for its cæspitose mode of growth and its irregular, deformed appearance. The pileus is somewhat perforated. The relationship is with C. expallens, C. Adirondackensis, etc.

Clitocybe sulphurea, *n. sp.*

Pileus convex, slightly umbonate, moist or subhygrophanous, pale yellow, streaked, flesh yellowish; lamellæ subdistant, adnate, uneven or serrulate on the edge, pale yellow; stem equal or tapering upwards, curved or flexuous, hollow, colored and streaked like the pileus, yellowish within; spores broadly, elliptical or subglobose, .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 1 to 2 in. broad; stem 1 to 3 in. long, 2 to 4 lines thick.

Decaying wood of spruce and balsam. Wittenberg mountain. September.

Distinct from *Tricholoma sulphureum*, which it resembles in color, by its moist pileus, adnate lamellæ, hollow stem and lack of odor.

Clitocybe tortilis, *Bolt.*

Hard ground in an old road. Sandlake. August. A species closely allied to *C. laccata* and appearing like an irregular dwarf form of that species. Sometimes cæspitose.

Collybia scorzonerea, *Batsch.*

Woods. Adirondack and Catskill mountains. July and September. The species is distinguished from *C. maculatus* by the yellowish hue of the pileus and lamellæ. The stem is sometimes attenuated and radicating at the base and sometimes blunt.

Collybia hariolorum, *D. C.*

Woods. Catskill mountains. September.

Collybia strictipes, *n. sp.*

Pileus thin, broadly convex or nearly plane, glabrous, slightly rugose on the disc, moist or subhygrophanous, pale yellow, more highly colored on the disk, paler when dry; lamellæ thin, crowded, adnexed or subfree, white; stem equal, straight, hollow, glabrous, slightly mealy or pruinose at the top, white, with a dense white tomentum at the base; spores ovate, pointed or acuminate at one end, .00025 to .0003 in. long, .00016 broad.

Pileus 1.5 to 2 in. broad; stem 1.5 to 2.5 in. long, 2 to 3 lines thick.

Woods. Catskill mountains. September.

Collybia alba, *n. sp.*

Pileus thin, convex or hemispherical, even, obtuse, glabrous, white; lamellæ broad, subdistant, ventricose, adnexed or nearly free, white; stem short, equal or slightly thickened at the top, solid, glabrous, white; broadly elliptical or subglobose, .00016 to .0002 in. long, .00012 to .00016 broad.

Pileus 3 to 5 lines broad, stem about 1 in. long, .5 to 1 line thick.

Mossy decayed wood and stumps. Gansevoort. July.

A small white species related to *C. Micheliana*, *C. muscigena* and *C. ludia*, but differing from these by its broad ventricose lamellæ.

Omphalia subgrisea, *n. sp.*

Pileus membranaceous, convex or nearly plane, glabrous, striatulate, grayish-brown with a paler margin; lamellæ distant, arcuate-decurrent, cinereous; stem slender, short, stuffed, generally curved, sprinkled with minute mealy particles, colored like the pileus.

Pileus 2 to 3 lines broad; stem 6 to 10 lines long.

Decayed wood of birch, *Betula lutea*. Blue Mountain lake, Adirondack mountains. July.

In color this plant resembles *Mycena vulgaris*, or grayish forms of *M. clavicularis;* in size, *M. corticola*. When very young the stem is conical and the pileus is more narrow than its base.

Mycena capillaripes, *n. sp.*

Pileus membranous, campanulate, glabrous, hygrophanous, livid gray or brownish and striate when moist, paler when dry, odor weak, alkaline; lamellæ ascending, subdistant, adnate, whitish or livid-white, the edge obscurely brownish-purple; stem slender, almost capillary, fragile, glabrous, hollow, colored like the pileus; spores narrowly elliptical, .0003 in. long, .00016 broad.

Pileus 3 to 5 lines broad; stem 1.5 to 2.5 in. long, scarcely .5 line thick.

Under pine trees. Karner. August.

This species is related to *Mycena rubromarginata* from which I have separated it because of its smaller size, slender stem, paler color, smaller spores and alkaline odor. It is also much smaller and paler than *M. purpureofusca*.

Mycena crystallina, *n. sp.*

Pileus membranous, at first conical or convex, then nearly plane, sometimes with a slight umbo and reflexed margin, even or obscurely striate on the margin, everywhere beset with minute shining viscid glandular particles, pure white; lamellæ narrow, thin, adnate, close, white; stem short, slender, hollow, colored and adorned like the pileus, attached by white woolly hairs.

Pileus 2 to 5 lines broad; stem 4 to 8 lines long.

Fallen leaves of pine. Catskill mountains. September.

The species belongs to the Basidipes and is closely related to *M. saccharifera*, from which it is separated because of its larger size, more numerous closer adnate lamellae and pure white color. The glands occur in every part of the plant and cause it to appear as if slightly sticky or viscid when pressed between the fingers. They are not visible to the naked eye, but under a lens they appear like minute globular shining particles. In the dried state the specimens assume a slight yellowish tint.

Entoloma sericeum, *Bull.*

Sandy pastures. West Albany. June.

Entoloma flavoviride, *n. sp.*

Pileus thin, at first broadly conical, then convex or subconcave by the upcurving of the margin, dingy yellowish-green, slightly silky and shining when dry; lamellæ broad, subdistant, ventricose, free or slightly adnexed, dingy or cinereous; stem equal, hollow, fibrous-striate, whitish; spores angular, uninucleate, .00045 to .0005 in. long, .0003 to .0004 broad.

Pileus 6 to 12 lines broad; stem 1 to 2.5 in. long, 1 to 2 lines thick.

Low swampy woods. Karner. August.

The color of the pileus is a peculiar dingy yellowish-green or olive-green by which the species is easily recognized.

Clitopilus erythrosporus, *n. sp.*

Pileus thin, hemispherical or strongly convex, glabrous or merely pruinose, grayish-incarnate, flesh whitish with an incarnate tint, taste farinaceous; lamellæ narrow, crowded, arcuate, strongly decurrent, colored like the pileus; stem equal or slightly tapering upward, hollow, slightly pruinose at the top, colored like the pileus; spores elliptical, rosy-red, .0002 in. long, .00012 to .00016 broad.

Pileus 1 to 2 in. broad; stem 1 to 1.5 in. long, 2 to 3 lines thick.

Decayed wood and among fallen leaves in woods. Catskill mountains and Menands. September and October.

The species is easily recognized by its peculiar uniform color, its narrow, crowded and very decurrent lamellæ and its bright rosy-red spores.

Clitopilus conissans, *n. sp.*

Pileus thin, convex, glabrous, pale alutaceous, often dusted by the copious spores; lamellæ close, adnate, reddish-brown; stem slender, brittle, hollow, white; spores narrowly elliptical, bright rosy red, .0003 in. long, .00016 broad.

Plant cæspitose; pileus 1 to 1.5 in. broad; stem 1 to 2 in. long, 1 to 2 lines thick.

A single tuft of this peculiar species was found growing at the base of an apple tree in the Catskill mountains, in September. The species is remarkable for the copious bright colored spores which were so thickly dusted over the pilei of the lower specimens as to conceal the real color of the surface. They are quite as bright as and a little longer than those of the preceding species. The general aspect of the plant with its dark colored lamellæ is suggestive of some species of Hypholoma or Psilocybe, but the color of the spores requires its insertion in this place.

Clitopilus cæspitosus *n. sp.*

Pileus at first convex, firm, nearly regular, shining white, then nearly plain, fragile, often irregular or eccentric from its tufted mode of growth, glabrous but with a slight silky luster, whitish, flesh white, taste mild; lamellæ narrow, thin, crowded, often forked, adnate or slightly decurrent, whitish, becoming dingy or brownish-incarnate; stem cæspitose, solid, silky-fibrillose, slightly mealy at the top, white; spores very pale incarnate, .0002 in. long, .00016 broad.

Pileus 2 to 4 in. broad; stem 1.5 to 3 in. long, 2 to 4 lines thick.

Thin woods and pastures. Catskill mountains. September.

This is a large, fine species, very distinct in its cæspitose habit, white color and very pale, sordid tinted spores. But for the color of these the plant might easily be taken for a species of Clitocybe. The tufts sometimes form long rows.

Pholiota minima, *n. sp.*

Pileus membranous, hemispherical or campanulate, umbonate, glabrous, hygrophanous, brown and striatulate when moist, pale buff or yellowish-white when dry; lamellæ rather close, subventricose, adnexed, ferruginous; stem slender, solid, glabrous, shining, similar to the pileus in color, annulus near the middle, slight, evanescent; spores elliptical, .0003 in. long, .0002 broad.

Pileus 2 to 4 lines broad; stem 8 to 12 lines long, .5 line thick.

Among Polytrichum. Catskill mountains. September.

The species is distinguished from *P. mycenoides*, to which it is closely related, by its smaller size, paler color, umbonate pileus and solid stem.

Inocybe fibrillosa, *n. sp.*

Pileus thin, convex or nearly plain, obtuse or subumbonate, densely fibrillose, tawny, the disk usually darker in color and adorned with appressed fibrillose scales; lamellæ close, adnate, at first yellowish or yellowish-olivaceous, then cinnamon-brown; stem equal, hollow, fibrillose-squamose, pallid; spores even, .0004 in. long, .00025 broad.

Pileus 10 to 18 lines broad; stem about 1 in. long, 1 to 2 lines thick.

Damp mossy banks in woods. Bethlehem, Albany county. August.

The species belongs to the Squarrosæ.

Inocybe subfulva, *n. sp.*

Pileus at first broadly conical or subcampanulate, then convex or nearly plane, umbonate, fibrillose-squamose, tawny-ochraceous; lamellæ broad, close, rounded behind, adnexed, ventricose, pallid, becoming tawny-cinnamon; stem, equal, firm, solid, fibrous-striate, obscurely pruinose, a little paler than the pileus; spores stelletely rough, .0004 to .0005 in. long, .0003 to .00035 broad.

Pileus 8 to 16 lines broad; stem 1 to 2 in. long, 1 to 2 lines thick.

Sandy soil, in fields. Selkirk. August.

Related to *I. calospora*, from which it differs in the erect scales of the pileus, the adnexed lamellæ, the solid stem and the somewhat elliptical shape of the spores. The species belongs to the Laceræ.

Inocybe violaceifolia, *n. sp.*

Pileus thin, convex or nearly plane, fibrillose, subsquamulose, grayish; lamellæ close, adnexed, at first pale violaceous, then brownish-cinnamon; stem firm, solid, slender, fibrillose, whitish; spores even, .0004 in. long, 00025 broad.

Pileus 6 to 12 lines broad; stem about 1 in. long, 1 line thick.

Mossy ground in woods. Selkirk. August.

A small, pale species, remarkable for the violaceous tint of the young lamellæ. It belongs to the Rimosæ.

Inocybe asterospora, *Quel.*

Woods and open places. Sandlake. June. South Ballston. July.

Inocybe margarispora, *Berk.*

Grassy ground in thin woods. Greenbush, Rensselaer county. June. Our specimens are a little smaller than the typical ones, but they appear to belong to this species.

Inocybe commixta, *Bres.*

Adirondack mountains. July.

Inocybe agglutinata, *n. sp.*

Pileus at first conical, then campanulate or convex, umbonate, fibrillose, pale tawny, streaked or spotted with appressed fibrils, the umbo usually darker; lamellæ close, broad, ventricose, adnexed, at first whitish, then brownish-cinnamon, often white on the edge; stem firm, solid, white or whitish and pruinose above, brownish or tawny and fibrillose below; spores even, .0004 to .00045 in. long, .0002 to .00024 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, 1 to 2 lines thick. Under pine trees. Catskill mountains. September.

This is a beautiful and well marked species. The fibrils of the pileus appear as if agglutinated to its surface, though it is not viscid. Sometimes they form tawny spots like appressed scales. In very wet weather they are apt to wash away and disappear. In general appearance the plant resembles *I. Whitei*, but the umbonate dry pileus at once distinguishes it. The real affinity is with *I. geophylla.*

Inocybe nigridisca, *n. sp.*

Pileus thin, at first convex, then nearly plane or somewhat centrally depressed, umbonate, moist, minutely fibrillose, blackish-brown with a grayish margin when moist, cinereous when dry; lamellæ close, rounded behind, free or slightly adnexed, at first grayish, then ferruginous-brown, sometimes tinged with yellow; stem slender, firm, solid, flexuous, minutely villose-pruinose, reddish-brown; spores nodulose, .0003 in. long, .0002 broad.

Pileus 4 to 8 lines broad; stem 1 to 1.5 in. long, .5 line thick.

Under cinnamon fern, *Osmunda cinnamomea.* Kasoag, Oswego county. June.

The adornment of the pileus and stem is so minute that at first sight the plant appears to be glabrous. The margin of the pileus soon becomes elevated, causing the center to appear depressed. The species belongs to the Velutinæ. It is distinguished from *I. paludinella* by its darker color, and its moist or subhygrophanous character.

Inocybe vatricosa, *Fr.*

Damp ground under willows. Catskill mountains. September.

The pallid color, decumbent stem and webby veil are characteristic of this species. The European plant is said to be inodorous, but our specimens had a radish-like odor. In it the spores are even, elliptical, .0004 in. long, .00024 broad. I find no description of the spores of the European plant. A variety with the disk reddish occurs in the same locality. It appears somewhat like a diminutive form of *Hebeloma longicaudum.*

Hebeloma crustuliniforme, *Bull.*

Open woods. Catskill mountains. September.

A small form, but exhibiting well the characters of the species.

Hebeloma longicaudum, *Pers.*

Woods. Catskill mountains. September.

In our plant the pileus is not umbonate, nor do all the descriptions ascribe this character to the species.

Flammula lubrica, *Fr.*

Decayed wood and ground among fallen leaves. Catskill mountains. September.

This species closely resembles *F. spumosa* in general appearance, but it may be distinguished by its somewhat spotted pileus and its white flesh. The spores also are paler than those of *F. spumosa.*

Flammula subfulva, *n. sp.*

Pileus convex, viscid, innately fibrillose, spotted toward the margin with darker appressed scales, sordid-tawny, flesh grayish-white; lamellæ close, adnate, brownish-ochraceous; stem equal or slightly tapering upward, fibrillose, solid, whitish; spores brownish-ochraceous, elliptical, uninucleate, .00024 to 0003 in. long, .00016 broad.

Pileus 1.5 to 2.5 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick.

About the base of trees. Catskill mountains. September.

The plant is more or less cæspitose. It is allied to *F. spumosa,* but differs in its tawny squamose-spotted pileus and grayish-white flesh.

Naucoria paludosa, *n. sp.*

Pileus very thin, broadly convex or plane, glabrous, hygrophanous, brown and striatulate on the margin when moist, buff-yellow when dry; lamellæ close, thin, rather broad, adnexed, at first yellowish or pallid, then brownish-ochraceous; stem slender, equal, hollow, brittle, glabrous, pallid or brownish; spores ferruginous, elliptical, uninucleate, .0004 in. long, .0002 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, .5 to 1 line thick.

Wet, marshy or damp ground under willows and alders. Catskill mountains. September.

Naucoria unicolor, *n. sp.*

Pileus thin, broadly convex, plane or slightly depressed, glabrous, hygrophanous, yellowish-brown and striatulate on the margin when moist, paler when dry; lamellæ thin, close, slightly rounded behind, colored like the pileus; stem equal, tough, hollow, glabrous, colored like the pileus, with white mycelium at the base; spores broadly elliptical, brownish-ferruginous, .00025 to .0003 in. long, .0002 broad.

Pileus 6 to 10 lines broad; stem 1 in. long, .5 to 1 line thick.

Decayed wood and old stumps of deciduous trees. Selkirk. August.

Naucoria triscopoda, *Fr.*

Decayed wood. Catskill mountains. September.

Our specimens belong to the form having the pileus striatulate on the margin when moist. This form is figured and described in Icones Selectæ as *Agaricus triscopus.*

Naucoria carpophila, *Fr.*

Borders of woods. Catskill mountains. September.

Galera inculta, *n. sp.*

Pileus thin, somewhat fragile, campanulate, then convex or nearly plane, obtuse or rarely with a small umbo, hygrophanous, cinnamon color and striatulate when moist, buff color and atomate when dry, sometimes minutely pitted or corrugated, rarely rimose-squamulose; lamellæ broad, subdistant, ventricose, adnexed, white crenulate on the edge, at first pallid, then pale cinnamon; stem straight or subflexuous, hollow, brittle, slightly silky striate, reddish-brown, sometimes slightly pruinose-mealy at the top and white villose at the base; spores subelliptical, pointed at each end, brownish-ferruginous, .0006 to .00065 in. long, .0003 broad.

Pileus 6 to 12 lines broad; stem 1 to 1.5 in. long, .5 to 1 line thick.

Damp ground under willows and alders. Catskill mountains. September.

This is a very distinct species. The pileus, when dry, resembles in color that of *Galera tener* ; when moist, that of *Clitocybe laccata* in its small glabrous striatulate form. The specimens were found growing with *Naucoria paludosa*, from which they may be distinguished by the more campanulate pileus, the broader, more distant lamellæ and the larger spores.

Agaricus comptulus, *Fr.*

Cultivated ground. Menands. August.

Closely allied to *A. campestris*, from which it may be separated by its smaller size; the yellowish hue of the dry plant and by the smaller spores.

Stropharia albocyanea, *Desm.*

Bushy pastures. Catskill mountains. September.

Psilocybe clivensis, *B. & Br.*

Borders of woods. Catskill mountains. September.

Psilocybe senex, *n. sp.*

Pileus thin, hemispherical, obtuse, hygrophanous, dark brown and striatulate when moist, pale cinereous and shining when dry, somewhat squamose with superficial subfasciculate whitish fibrils, the margin appendiculate with the same; lamellæ broad, subdistant, adnate, at first grayish, then brown or blackish-brown with a white edge; stem slender, hollow, fragile, minutely floccose-pruinose, subpellucid, white; spores brown, elliptical, .0003 in. long, .0002 broad.

Pileus 6 to 10 lines broad; stem 1.5 to 3 in. long, 1 line thick.

Decayed wood in woods. Catskill mountains. September.

The species is apparently related to *P. canifaciens*, but is at once distinguished by its slender white stem. The specific name has reference to the white hairs or fibrils of the pileus, which are suggestive of the white hairs of old age.

Deconica subviscida, *n. sp.*

Pileus thin, at first subconical, then convex or nearly plane, often slightly umbonate, glabrous, hygrophanous, pale chestnut or reddish tan color, subviscid and striatulate on the margin when moist, pallid or dull buff when dry; lamellæ broad, subdistant, adnate or slightly decurrent, at first whitish or dingy, then brownish ferruginous; stem equal or tapering downwards, fibrillose, hollow, brownish toward the base, paler above, the fibrils whitish or grayish; spores ovate, brown, .0003 in. long, .0002 broad.

Pileus 3 to 6 lines broad; stem about 1 in. long, 1 line thick.

Horse dung and manured ground. Menands. August.

This species has many characters in common with *D. bullacea*, from which I have separated it because of its scarcely viscid pileus without a separate cuticle, and its different spores. It is gregarious, and in wet weather appears in great abundance and in successive crops. The slight whitish veil is perceptible in the young plant.

Psathyrella minima, *n. sp.*

Pileus membranous, hemispherical, obtuse, obscurely striatulate when moist, even and pruinose-atomate when dry, dingy-yellow or reddish-brown, becoming paler in drying; lamellæ broad, adnate, white, becoming yellowish-cinnamon; stem capillary, minutely mealy or furfuraceous under a lens, pellucid, white; spores black, narrowly elliptical, .00025 to .0003 in. long .00012 to .00015 broad.

Pileus 1 to 2 lines broad; stem 4 to 6 lines long.

Excrement of deer in woods. Adirondack mountains. July.

About the size of and growing with *Coprinus radiatus* from which it is clearly distinct by its entire pileus and persistent adnate lamellæ.

Cortinarius balteatus *Fr.*

Grassy ground in pastures. Catskill mountains. September.

Our specimens belong to a form which may be called variety *bulbosus*. Stem strongly bulbous, at first almost wanting, the pileus appearing to rest on the bulb which is abruptly pointed beneath.

The typical form occurs in Europe and is said to grow especially under pine trees.

Cortinarius pluvius, *Fr.*

Woods. Catskill mountains. September.

Cortinarius muscigenus, *n. sp.*

Pileus at first ovate, then convex or concave from the recurving of the margin, subumbonate, glabrous, viscose with a separable pellicle, tawny-orange and widely striate on the margin when moist, tawny and shining when dry, flesh dingy white, tinged with yellow; lamellæ broad, ventricose, adnate, with a broad shallow emargination, somewhat rugose on the sides, yellowish, becoming cinnamon; stem long, subequal, viscid, even, silky, solid, white or whitish; spores .0005 to .0006 in. long, .0003 to .00036 broad.

Pileus 1.5 to 2.5 in. broad; stem 3 to 4 in. long, 3 to 4 lines thick. Mossy ground under balsam trees. Wittenberg mountain. September.

Closely related to *C. collinitus* from which it is separated by its more highly colored pileus, striate margin and even, not diffracted-squamose, stem.

Cortinarius brevipes, *n. sp.*

Pileus convex, silky-fibrillose, sordid white, flesh yellowish-white; lamellæ close, adnexed, pale violaceous becoming cinnamon; stem short, silky-fibrillose, bulbous, whitish, pale violaceous within; spores subelliptical, .0004 in. long, .00024 broad.

Pileus 1 to 2 in. broad; stem about 1 in. long, 4 to 6 lines thick. Woods. Catskill mountains. September.

The species belongs to the tribe Inoloma and is related to *C. alboviolaceus*, from which it is separated by its smaller size, short stem and yellowish-white flesh.

Cortinarius brevissimus, *n. sp.*

Pileus convex, often irregular, at first minutely silky, then glabrous, dingy white or argillaceous, flesh whitish; lamellæ close, adnexed at first pale violaceous, then whitish, finally cinnamon; stem equal, very short, hollow, silky-fibrillose, white, pale violaceous within; spores broadly elliptical, .00024 to .0003 in. long, .0002 to .00024 broad.

Pileus 8 to 12 lines broad; stem 5 to 8 lines long, 3 to 4 lines thick.

Thin woods. Catskill mountains. September.

Related to the preceding species, but smaller, with a hollow stem and shorter spores.

Cortinarius albidifolius, *n. sp.*

Pileus thin, convex, subglabrous, whitish, tinged with yellow or pale ochraceous, the epidermis sometimes cracking and forming squamules, flesh whitish; lamellæ subdistant, slightly emarginate, adnate, whitish, becoming cinnamon; stem equal or slightly thickened at the base, solid, white, variegated below with yellowish floccose squamules, silky-fibrillose at the top; spores subglose or broadly elliptical; .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 1 to 2 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick.

Woods. Catskill mountains. September.

Related to *C. ochroleucus*, but apparently distinct by the yellow scales of the stem and the adnate subdistant lamellæ. Both it and the preceding species belong to the tribe Dermocybe.

Cortinarius spilomeus, *Fr.*

Woods. Catskill mountains. September.

Cortinarius flavifolius, *n. sp.*

Pileus convex or nearly plane, fibrillose or squamulose, sometimes longitudinally rimose, varying in color from sordid buff to tawny yellow, flesh whitish; lamellæ subdistant, adnexed, at first a rich sulphur yellow, then yellowish cinnamon; stem slightly tapering upward, solid, whitish, peronate and slightly annulate by the copious silky, whitish veil; spores broadly elliptical, .0003 in. long, .0002 broad.

Pileus 2 to 3 in. broad; stem 2 to 3 in. long, 5 to 8 lines thick.

Woods. Catskill mountains. September.

The pileus is not truly hygrophanous, but the character of the stem indicates that the species belongs in Telamonia near *C. bivelus*. It differs from *C. limonius* by its dry pileus, and from *C. infucatus* by the color of the young lamellæ.

Cortinarius griseus, *n. sp.*

Pileus convex, obtuse or gibbous, fibrillose-squamulose with grayish hairs or fibrils, moist, pale gray; lamellæ subdistant, adnexed, at first pallid, then brownish-ochraceous; stem tapering upward from a thickened or bulbous base, silky-fibrillose, whitish; spores .0004 to .0005 in. long, .0003 broad.

Pileus 1 to 3 in. broad; stem 2 to 3 in. long, 3 to 6 lines thick.

Mossy ground under balsam trees. Wittenberg mountain. September.

The fibrils of the pileus are similar to those of *C. paleaceus*, but the plant is much larger and stouter, and the spores are larger than in that species. It is well marked by its grayish color.

Cortinarius badius, *n. sp.*

Pileus thin, at first conical, then convex or broadly campanulate, umbonate, hygrophanous, blackish-chestnut color when moist, bay-red or chestnut color when dry, sometimes tinged with gray, the umbo darker, usually whitish-silky on the margin when young, flesh, when moist, colored like the pileus; lamellæ broad, subdistant, ventricose, adnexed, at first yellowish or cream-color, then subochraceous; stem slender, equal, hollow, silky-fibrillose and subannulate by the whitish veil, when old colored like the pileus both without and within; spores .0005 in. long, .0003 broad.

Pileus 8 to 12 lines broad; stem 1 to 1.5 in. long, about 1 line thick.

Mossy ground. Catskill mountains. September.

The species is related to *C. nigrellus*, from which it differs in its broad lamellæ which are paler in the young plant and in its larger spores.

Cortinarius subflexipes, *n. sp.*

Pileus thin, conical, then expanded and subacutely umbonate, hygrophanous, blackish-brown with the thin margin whitened by the veil when moist, subochraceous when dry; lamellæ thin, close, ventricose, adnexed, at first reddish-violaceous, then cinnamon; stem equal, flexuous, silky, shining, subannulate by the whitish veil, pale violaceous when young, pallid or reddish when old; spores .00024 to .0003 in. long; .0002 broad.

Pileus 6 to 10 lines broad; stem 1 to 1.5 in. long, about 1 line thick.

Thin woods. Catskill mountains. September.

Apparently related to *C. flexipes*, from which I have separated it because of its more glabrous pileus and different lamellæ. It and the two preceding species are referred to the tribe Telamonia.

Cortinarius paleaceus, *Fr.*

Mossy or bare ground in open places. Catskill mountains. September.

Cortinarius rigidus, *Fr.*

Catskill mountains. September.

Hygrophorus Lauræ, *Morg.*

Woods. Catskill mountains. September.

The squamules at the top of the stem are sometimes reddish. The disc is sometimes yellowish.

Lactarius aspideus, *Fr.*

Borders of woods. Catskill mountains. September.

A pretty but rare species, easily known by its pale yellow or straw color and the lilac hue assumed by wounds of the lamellæ or flesh. In Systema Mycologicum the stem is described as hollow and spotted. In our specimens the stem is hollow but not spotted. It is colored like the pileus and the spores are broadly elliptical or subglobose, slightly rough, .0003 to .0004 in. long.

Lactarius maculatus, *n. sp.*

Pileus fleshy, firm, at first convex and umbilicate or centrally depressed, then subinfundibuliform, glabrous, viscid when moist, concentrically spotted, especially toward the margin, varying in color from grayish-buff to grayish-lilac, flesh subconcolorous, taste acrid and unpleasant; lamellæ close, thin, sometimes forked, adnate to decurrent, pallid or cream color; stem short, equal or tapering toward the base, hollow, spotted, colored like, or a little paler than, the pileus; milk at first whitish with a cream-colored tint, wounds of the flesh and lamellæ changing to lilac; spores subglobose, echinulate, .0004 to .0005 in. long.

Pileus 3 to 5 in. broad; stem 1 to 2 in. long, 5 to 8 lines thick.

Thin woods and pastures. Catskill mountains and Menands. August and September.

This species is allied to *L. uvidus*, with which it was united in the Thirty-eighth Report as variety *magnus*. Having had the opportunity of investigating it in the fresh state, it seems to me to be a distinct species, readily recognized by its larger size and its firmer, spotted pileus which is centrally depressed or infundibuliform. I have not seen it at all umbonate. The spots of the pileus are arranged in concentric circles and by their confluence the pileus often appears to be zonate. The change of color assumed by wounds is similar to that which takes place in *L. uvidus*.

Russula lepida, *Fr.*

Woods. Menands. August.

Generally with the pileus red, but quite variable in this respect.

Russula adulterina, *Fr.*

Low swampy ground. Karner. June.

This is placed by Fries as a variety of *R. integra.*

Russula atropurpurea, *n. sp.*

Pileus at first convex, then centrally depressed, glabrous, dark purple, blackish in the center, the margin even or slightly striate, flesh white, grayish or grayish-purple under the separable pellicle, taste mild, odor of the drying plant fetid, very unpleasant; lamellæ nearly equal, subdistant, sometimes forked near the stem, at first white, then yellowish, becoming brownish where bruised; stem equal, glabrous, spongy within, white, brownish where bruised; spores subglobose, minutely rough, pale ochraceous with a salmon tint, .0003 to .0004 in. long.

Pileus 3 to 4 in. broad; stem 2 to 3 in. long, 5 to 8 lines thick.

Open woods. Gansevoort. July.

In color this species resembles *R. variata*, but in other respects it is very different. It is very distinct in the peculiar color of its spores, and in the brownish hue assumed by wounds.

Boletus speciosus, *Frost.*

Woods. Sandlake and Bethlehem. August.

A beautiful species belonging to the Calopodes.

Boletus auriflammeus, *B. & C.*

A single specimen of this very rare but well-marked species was found in Sandlake. August.

Boletus purpureus, *Fr.*

Oak woods. Menands. August.

Boletus hemichrysus, *B. & C.*

Pine stumps. Gansevoort. July.

The Boleti are generally terrestrial fungi as affirmed by Professor Fries in Hym. Europ., but this species appears to be an exception to the prevailing habit of the genus. *B. subtomentosus*, *B. piperatus* and *B. felleus* sometimes grow on decayed wood, but they are usually terrestrial. Of this species only three specimens have been seen, all of which grew from the side of an old pine stump. The tomentum of the pileus is nearly one line thick. The species belongs to the tribe Pulverulenti.

Boletus glabellus, *n. sp.*

Pileus fleshy, thick, broadly convex or nearly plane, soft, dry, subglabrous, smoky-buff, flesh white, both it and the tubes changing to blue where wounded; tubes nearly plane, adnate, small, subrotund, ochraceous tinged with green; stem subequal, glabrous, even, reddish toward the base, pallid above, adorned with a narrow reddish zone or circumscribing line at the top; spores oblong, brownish-ochraceous, with a tinge of green when fresh; .0004 to .0005 in. long, .00016 broad.

Pileus 3 to 5 in. broad; stem 1 to 3 in. long, 5 to 10 lines thick.

Grassy ground under oaks. Menands. July.

The species belongs to the Subpruinosi, and is easily distinguished from its allies by the reddish circumscribing line at the top of the stem. This disappears in the dried specimens.

Boletus variipes, *n. sp.*

Pileus from convex to nearly plane, thick, soft, dry, squamulose, punctate-squamulose or minutely tomentose, pale grayish-brown, sometimes tinged with yellow or ochraceous, flesh white, unchangeable; tubes convex or nearly plane, slightly depressed around the stem, small, subrotund, at first white, then greenish-yellow, the mouths dingy ochraceous; stem nearly equal, firm, more or less reticulated, whitish or pallid; spores oblong-fusiform, brownish-ochraceous with a greenish tinge, .0005 to .0006 in. long, .0002 broad.

Pileus 3 to 6 in. broad; stem 2 to 4 in. long, 4 to 12 lines thick.

Oak woods. Menands. August.

The species belongs to the Edules. It is separated from *B. edulis* by its squamulose pileus. This character and its paler stem also separate it from *B. separans.* The stem is variable in color, length and degree of reticulation.

Variety *albipes.* Stem whitish, wholly reticulated, the reticulations coarser toward the base.

Variety *pallidipes.* Stem pallid, slightly scurfy, even or obscurely reticulated toward the base.

Variety *tenuipes.* Stem elongated, slender.

Boletus indecisus, *n. sp.*

Pileus convex or nearly plane, dry, slightly tomentose, ochraceous-brown, often wavy or irregular on the margin, flesh white, unchangeable, mild; tubes nearly plane or convex, adnate, small, subrotund, grayish, tinged with flesh color when mature, becoming dingy or brownish where wounded; stem minutely scurfy, often irregular or flexuous, reticulated at the top, pallid without and within; spores oblong, brownish flesh color, .0005 to .0006 in. long, .00016 broad.

Pileus 3 to 4 in. broad; stem 2 to 4 in. long, 4 to 6 lines thick.

Oak woods. Menands. August.

It belongs to the tribe Hyporhodii. It has the general appearance of *B. modestus*, but the tubes are not at all yellow. It differs from *B. alutarius* in color and in having the stem reticulated at the top, not scrupose. Its mild taste will separate it from any form of *B. felleus*.

Boletus albellus, *n. sp.*

Pileus convex, soft, glabrous, whitish, flesh white, unchangeable; tubes convex, free or nearly so, small, subrotund, whitish, not changing color when wounded; stem glabrous or minutely furfuraceous, substriate, bulbous or thickened at the base, whitish; spores brownish-ochraceous, .00055 to .00065 in. long, .0002 to .00025 broad.

Pileus 1 to 2 in. broad; stem 1 to 2 in. long, 3 to 6 lines thick.

Woods. Sandlake. August.

Closely related to *B. scaber*, of which it may possibly prove to be a dwarf form; but it is easily distinguished by its smooth or only slightly scurfy stem without any appearance of the colored dot-like squamules which are a constant and characteristic feature of that species.

Polyporus flavovirens, *B and R.*

Ground in woods. Selkirk. August.

Our specimens agree very well with the description of *P. flavovirens*, except that they are smaller and the dry plant is not tough and fibrous. They are to this extent doubtful.

Polyporus rimosus, *Berk.*

Trunks of locust, *Robinia pseudacacia*. Flatbush, L. I. *Rev. J. L. Zabriskie.*

Polyporus mutans, *n. sp.*

Resupinate rather thick, tough, following the inequalities of the wood; pores minute, rotund, short, buff-yellow or cream color, becoming dingy red or dull incarnate where wounded, the subiculum fibrous, changing color like the pores, the whole plant assuming an incarnate hue when dried.

Decaying wood of deciduous trees. Selkirk. August.

Sometimes a narrow, reflexed obtuse margin of a yellowish brown color is formed. The pores are often oblique. The species appears to be quite distinct by reason of its peculiar colors.

Polyporus pineus, *n. sp.*

Resupinate, irregular from the inequalities of the matrix, rather tender but separable from the matrix, the thin subiculum and margin whitish, sometimes tinged with yellow; pores rather large, angular, unequal, two to three lines long, often oblique and lacerated, dingy whitish, becoming blackish where bruised or wounded, the whole plant becoming blackish or blackish-brown in drying.

Wood and bark of pine. Selkirk. August.

The species is apparently allied to *P. obliquus*, but the pores can not be described as very small, nor has our plant an "erect crested margin." It has a distict subiculum on which the pores are formed and by reason of which the plant is separable from the matrix.

Merulius Ravenelii, *Berk.*

Bark of prostrate trunks of spruce, *Abies nigra*. Adirondack mountains. July to September.

This fungus varies in hue from flesh color to dark smoky red or brownish-red. The pores are at first shallow with obtuse folds or dissepiments, but with age these become thinner and the pores deeper so that the plant might easily be taken for a Polyporus. Its pure white margin contrasts conspicuously with its dark waxy hymenium. The specimens labeled *Merulius serpens* in Ravenel's Exsiccati, Vol. IV, 9, belong to this species.

Merulius himantioides, *Fr:*

Prostrate trunks of hemlock. Catskill mountains. September.

The color of the hymenium resembles that of *M. lacrymans*, but the subiculum is very different. The fungus is soft, tender and membranous, and by confluence becomes widely effused. The subiculum is sometimes studded with drops of a reddish color, and is composed in part of branching strings of mycelium.

Hydnum fasciatum, *n. sp.*

Pileus thin, coriaceous, nearly plane, umbilicate, blackish-brown, adorned with three to seven narrow elevated scabrous, tawny-gray concentric zones; aculei short, decurrent, ferruginous-brown; stem short, slender, tough, tawny-gray or blackish; spores subglobose, rough, .00016 in. broad.

Pileus 6 to 12 lines broad; stem 4 to 6 lines long.

Naked ground in woods. Catskill mountains. September.

The specimens were past maturity when collected, and the colors of young plants may vary somewhat from those here given. The species is well marked by the peculiar elevated zones or lines of the pileus. The plant is closely gregarious, and sometimes the pilei are confluent The relationship is with *H. connatum* and *H. zonatum.*

Irpex nodulosus, *n. sp.*

Resupinate, forming suborbicular patches four to ten inches or more in diameter, subseparable; the subiculum thick, tough; the hymenium dentate-porous toward the thick definite margin, centrally nodulose and prolonged into unequal compressed truncate or laciniate, rarely terete acute aculei, whitish, centrally yellowish or pale ferruginous.

Bark of standing trunks of poplar. Gansevoort. July.

Radulum pendulum, *Fr.*

Dead prostrate trunk of basswood, *Tilia Americana.* Argusville. July.

This is distinct from our other species by its reflexed pileate form. The pileus is whitish and pubescent, or at length nearly smooth. The species is quite rare.

Corticium olivaceum, *Fr.*

Decayed wood. North Greenbush and Slingerlands.

Clavaria albida, *n. sp.*

Plants 2 to 4 in. high, whitish ; stem short, thick, generally tapering downwards, divided above into a few short, thick, much-branched ramuli, ultimate branches densely crowded, terminating in a few short, blunt teeth ; flesh firm, dry, whitish, taste tardily acrid, then bitter; spores oblong, pale ochraceous, .0005 to .0006 in. long, .0002 broad.

Ground in thin woods. Menands. August.

The species has the structure of *C. botrytis* and *C. flava*, but it is readily distinguished from these by its uniform whitish color, the tips of the branches being concolorous.

Clavaria densa, *n. sp.*

Tufts 2 to 4 in. high, nearly as broad, whitish or creamy yellow, branching from the base ; branches very numerous, nearly parallel, crowded, terete, somewhat rugose when dry, the tips dentate, concolorous ; spores slightly colored, subelliptical, .0003 to .0004 in. long, .0002 to .00034 broad.

Ground in woods. Selkirk. August.

Apparently closely allied to *C. condensata*, but differing decidedly in color.

Geaster Schæfferi, *Vitt.*

Woods. Catskill mountains. September.

The interior stratum of the external peridium is very thick in the fresh plant and conceals the short pedicel of the inner peridium, but in the dried state this stratum contracts and exposes the pedicel, which is about one line long. This character distinguishes the species from *G. rufescens.*

Geaster vittatus, *Kalchb.*

Under pine trees. Catskill mountains. September.

The thin outer coat of the external peridium cracks in parallel lines, causing the laciniae or rays to appear as if striped with white longitudinal lines. This character gives name to the species and serves to distinguish it from *G. saccatus* to which it is otherwise very closely related.

Sphæropsis carpinea, *Sacc. & Br.*

Dead twigs of water beech, *Carpinus Americana.* Menands. May.

Cercospora Gentianæ, *n. sp.*

Spots suborbicular, brown or reddish-brown, sometimes confluent; hyphæ amphigenous, short, subflexuous, slightly colored, .0006 to .0012 in. long, growing from minute blackish tubercles; spores more narrow than the hyphæ, cylindrical or gradually narrowed toward one end, one to three-septate, colorless, .0012 to .0024 in. long.

Living leaves of gentian, *Gentiana linearis.* Number Four, Adirondack mountains. July.

Oöspera Cucumeris, *n. sp.*

Tufts loose, subconfluent, whitish or grayish, forming soft, velvety patches; hyphæ erect or diverging; spores catenulate, elliptical or oblong, colorless, .0004 to .0008 in. long, .00025 to .0003 broad.

Decaying fruit of muskmelon, *Cucumis Melo.* Menands. October.

Sporendonema myophilum, *Sacc. in litt.*

Hyphæ colorless, simple or branched, densely interwoven and forming a soft whitish somewhat waxy mass, some of them producing chains of globose or broadly-elliptical spores, .00016 to .0003 in. long.

Inhabiting the bodies of living mice. Binghamton. *H. L. Griffis.*

In the specimen contributed by Mr. Griffis the fungus had broken the skin of the mouse near the eyes, and also on the left shoulder. In the latter place the white patch was about six lines broad, and the ruptured margin of the skin had in some parts a bloody appearance. The mouse was said to be alive when caught, but it is quite probable that the fungus would have killed it in a short time. It would be interesting to know if the fungus could be communicated to healthy mice in their food or otherwise, but my efforts to obtain a subject on which to try the experiment were unsuccessful.

Zygodesmus violaceofuscus, *Sacc.*

Roots of beech. Selkirk. August.

(D.)

REMARKS AND OBSERVATIONS.

Nymphæa odorata, *Ait.*

A form with very large leaves and flowers, equaling in size those of *N. tuberosa*, grows in the inlet of Beaver lake, Number Four, Lewis county. It has the decided and delightful fragrance of the ordinary form.

Rubus villosus, *Ait.* var. humifusus, *T. & G.*

Professor Dudley finds this variety near Ithaca. The variety *frondosus* is much more plentiful, and from it most of the cultivated varieties appear to have been derived, if we may judge by the character of the fruit offered for sale in the markets. It is less cylindrical, more acid and has larger seeds than the fruit of the typical form. I am quite confident that the true *R. villosus* would produce a fruit of far better quality, if brought under successful cultivation, and it seems strange that some of our enterprising nurserymen have not succeeded in introducing it into more frequent cultivation.

Vaccinium Canadense, *Kalm.*

A black-fruited variety of this valuable little shrub is plentiful at Number Four, Adirondack wilderness. There is also a black-fruited variety of *V. vaccillans*.

These varieties do not appear to have been designated by name, but they correspond to variety *nigrum* of *V. Pennsylvanicum* and variety *atrococcum* of *V. corymbosum*. Thus each of our common edible blueberries has its black-fruited variety. These black fruits are destitute of the bloom of the ordinary ones, and have a shining luster, but are scarcely different in flavor or quality from the ordinary blue ones. The black huckleberry, *Gaylussacia resinosa*, also has its corresponding variety, in which the fruit is jet black and shining. It also sometimes differs slightly in shape from the ordinary dull black fruit.

Scirpus polyphyllus, *Vahl.*

Gansevoort. July. A rare species with us.

Scirpus Torreyi, *Olney.*

Beaver lake at the inlet from Beaver dam. July.

This is a form in which the cluster of spikes is subtended by a bract equaling or slightly exceeding it in length.

Lepiota amianthina, *Scop.*

Specimens sometimes approach *L. granulosa* in the structure of the lamellæ which are somewhat emarginate and adnexed, but in all other respects they are true *L. amianthina.*

Lepiota granulosa, *Batsch. var.* albida.

A persistently whitish variety. Pastures. Catskill mountains. September.

Tricholoma fumidellum, *Pk.*

In the Catskill mountains a form of this species occurs which has the pileus umbonate and the umbo decidedly brown or smoky brown. Sometimes the cuticle is rimose areolate and then the plant imitates *Lepiota cristata* in general appearance. It is moist in wet weather and belongs to the tribe Spongiosa.

Tricholoma fumosoluteum, *Pk.*

Abundant among moss under balsam trees near the summit of Wittenberg mountain. The pileus is sometimes spotted thus indicating a relationship with the tribe Guttata, though its real affinities are with the Spongiosa. The taste is farinaceous and slightly bitter. The flesh is tinged with yellow under the subseparable epidermis.

Tricholoma Peckii, *Howe.*

This rare species occurs in the Catskill mountains.

Both the pileus and stem are adorned with beautiful tawny or tawny-red scales. The lamellæ when old become stained or spotted with brown or are discolored or dotted on the edge. The white flesh of the pileus has a farinaceous taste, then bitterish. The odor is also somewhat farinaceous. The pileus is viscid when moist, and the species is allied to *T. transmutans* and *T. albobrunneum.*

Clitocybe nebularis.

A cæspitose form of the species was observed in the Catskill mountains. Also a form in which the whole plant is white. This is the common form in these mountains. It has the same shape as the typical form, from which it differs only in color.

Clitocybe laccata, *Scop. var.* amethystina.

Specimens of this beautiful variety were found at Menands and at Karner in August. Two forms occur, in both of which the pileus is umbilicate and dark violaceous when moist, canescent or greyish when dry; in one the pileus is about one inch broad, convex and regular; in the other it is two to two and a half inches broad, and has the margin reflexed and often much lobed and wavy. In this form the lamellæ are broad, distant and often ruptured transversely. They are also more highly colored than in the typical form. The ordinary form has been found growing in circles in grassy places.

Collybia lentinoides, *Pk.*

A description of this species was published in the Thirty-second Report. Two varieties have been observed the past season.

Variety *rufipes*. Stem even, colored reddish-alutaceous like the pileus. This variety closely resembles ordinary forms of *Collybia dryophila* in color, and but for the serrated edge of the lamellæ it might easily be taken for that species. Albany Rural cemetery. June.

Variety *flaviceps*. Pileus buff-yellow and striatulate on the margin when moist, pale buff when dry; stems cæspitose, hollow, whitish.

In all the forms the essential characters of the species are the glabrous, hygrophanous pileus, the lamellæ with serrated edge and the stuffed or hollow stem.

Collybia rubescentifolia, *Pk.*

In the Thirty-ninth Report this species was referred to Tricholoma, but subsequent observations indicate that it is a Collybia. The pileus is pretty constantly umbilicate and is hygrophanous, being dingy-yellow or smoky-yellow when moist and pale-yellow or buff when dry. The change in the color of the lamellæ in the dried plant is a marked and constant character, and is suggestive of the specific name. The species is closely allied to *C. luteoölivacea* B. & C., but no hygrophanous character is attributed to that species nor any change in the color of the lamellæ. Besides, its stem is described as scurfy.

Mycena pura, *Pers.*

This species is quite variable in color. A form occurs under pine trees in the Catskill mountains, in which the whole plant has a purplish color, with the lamellæ a little paler than the pileus and stem. It is darker than the ordinary forms.

Naucoria Highlandensis, *Pk.*

This was found in the Catskill mountains, growing on buried pieces of charcoal. This habitat is the same as that of *Flammula carbonaria,* a species to which our plant is evidently allied, but from which it is separated by its white flesh and its adnexed lamellæ.

Stropharia Johnsoniana, *Pk.*

A form of this very rare species, which has hitherto been found in but one locality, occurs in the Catskill mountains. In it the pileus is wholly yellowish and sometimes marked with darker spots, and the stem is squamulose below the annulus, with upwardly directed squamules.

Hygrophorus miniatus, *Fr.*

This species is very abundant in wet weather in all our woody and swampy districts, and is very variable in size and somewhat in color.

Variety *subluteus.* Pileus yellow or reddish-yellow, stem and lamellæ yellow, plant often cæspitose.

Thin woods. Catskill mountains. September.

Lactarius rufus, *Fr.*

Among moss, under balsam trees, near the summit of Wittenberg mountain. A small form, but very acrid, and thus distinguishable from large forms of *L. subdulcis.*

Lactarius affinis, *Pk.*

This occurred plentifully in the Catskill mountains in September. It is readily distinguished from *L. insulsus* by the characters indicated in the Thirty-eighth Report.

Lactarius scrobiculatus, *Fr.*

Fine specimens were found growing under hemlock trees in the Catskill mountains. The pileus in some was eight inches broad, pale yellow, very viscid, slightly zoned and distinctly bearded on the margin with coarse hairs.

Russula sordida, *Pk.*

A large form of this species was found growing under hemlock trees at Gansevoort. The pileus was four to eight inches broad, at first white or whitish, umbilicate or centrally depressed; then more or less stained with smoky-brown or blackish hues and subinfundibuliform. The flesh is white and taste mild; the stem is short, one to two inches thick, solid, white, and somewhat pruinose; the lamellæ are distant, unequal, very brittle, tinged with yellow. Every part of the plant turns blackish or violaceous-black where wounded. By this character it is distinguished from *R. nigricans*, in which the flesh at first becomes red where broken.

Marasmius salignus, *Pk. var.* major.

Pileus six to ten lines broad; lamellæ broad, distant, decurrent, the interspaces venose; stems often cæspitose.

Bark of willows. Gansevoort. July.

Marasmius androsaceus, *Fr.*

Two forms of this species occur here as in Europe. There the form with paler pileus grows on fallen leaves of frondose trees, the one with darker or fuscous pileus on leaves of acerose trees. Here the form with pale pileus abounds, in wet weather, on fallen leaves of spruce trees, and the one with fuscous pileus on fallen pine leaves. Often the two forms grow in close proximity to each other, yet, in every instance observed, the difference of color corresponds to this difference in habitat.

Marasmius præacutus, *Ellis.*

Fallen pine leaves. Catskill mountains. September.

Polyporus cæruleoporus, *Pk.*

On exposure to the light the blue color gradually fades to a grayish hue. Sometimes specimens occur with one-half of the pileus exposed and faded, the other half sheltered and retaining its normal grayish-blue color. The pores retain the blue color longer than the pileus, but the whole plant fades in drying. The flesh of the pileus is white.

Polyporus vulgaris, *Fr.*

A form with vesicular pores, a vertical section of the hymenium being porous, was found on poplar at Gansevoort. September. *P. obducens*, *P. adustus* and *P. subacidus* have all a similar vesicular form. I am satisfied that the genus Myriadoporus, which was founded on such forms, is not a good one and should be abandoned.

Solenia villosa, *Fr. var.* **polyporoidea.**

At first granuliform, then cylindrical, often crowded and forming a continuous pure white stratum, appearing like a resupinate Polyporus, the villosity scarcely visible to the naked eye, but perceptible with a lens.

Decayed wood of hemlock. Adirondack mountains. July.

This differs from the typical form in its crowded mode of growth. Is it, therefore, a distinct species?

Clavaria stricta, *Pers. var.* **fumida.**

The whole plant is of a dingy, smoky-brownish hue. Otherwise as in the typical form. Catskill mountains. September.

In the fresh state the specimens appear very unlike the ordinary form, but in the dried state they are scarcely to be distinguished.

Geoglossum microsporum, *C. & P.*

A rare species, not observed since its discovery in 1871, till it was again found this year in the Catskill mountains.

(E.)

FUNGI DESTRUCTIVE TO WOOD.

Note.—P. H. Dudley, C. E., has investigated the action of certain fungi upon railroad ties and wooden structures. At my request he has communicated to me some of the results of his investigations. These results are of such great practical and economic importance, that with his permission, I have added to this report a copy of his communication.

66½ Pine Street, New York, *December* 5, 1887.

Prof. Charles H. Peck, *State Botanist:*

My Dear Sir. — The well established fact that the decay of all timber, under ordinary usages, is due to the growth of many species of fungi, gives to your long and patient work, in collecting, identifying and calling attention to different species, a value and bearing of practical importance hardly expected a few years since. The enormous annual consumption of timber by railroad companies, shipbuilders, architects, manufacturers and farmers, in conjunction with the decreasing supply and increasing cost, gives value to any knowledge which will help check any unnecessary decay of timber.

The experience gained from the failures of many of the expensive efforts to preserve timber has shown that specific knowledge of the

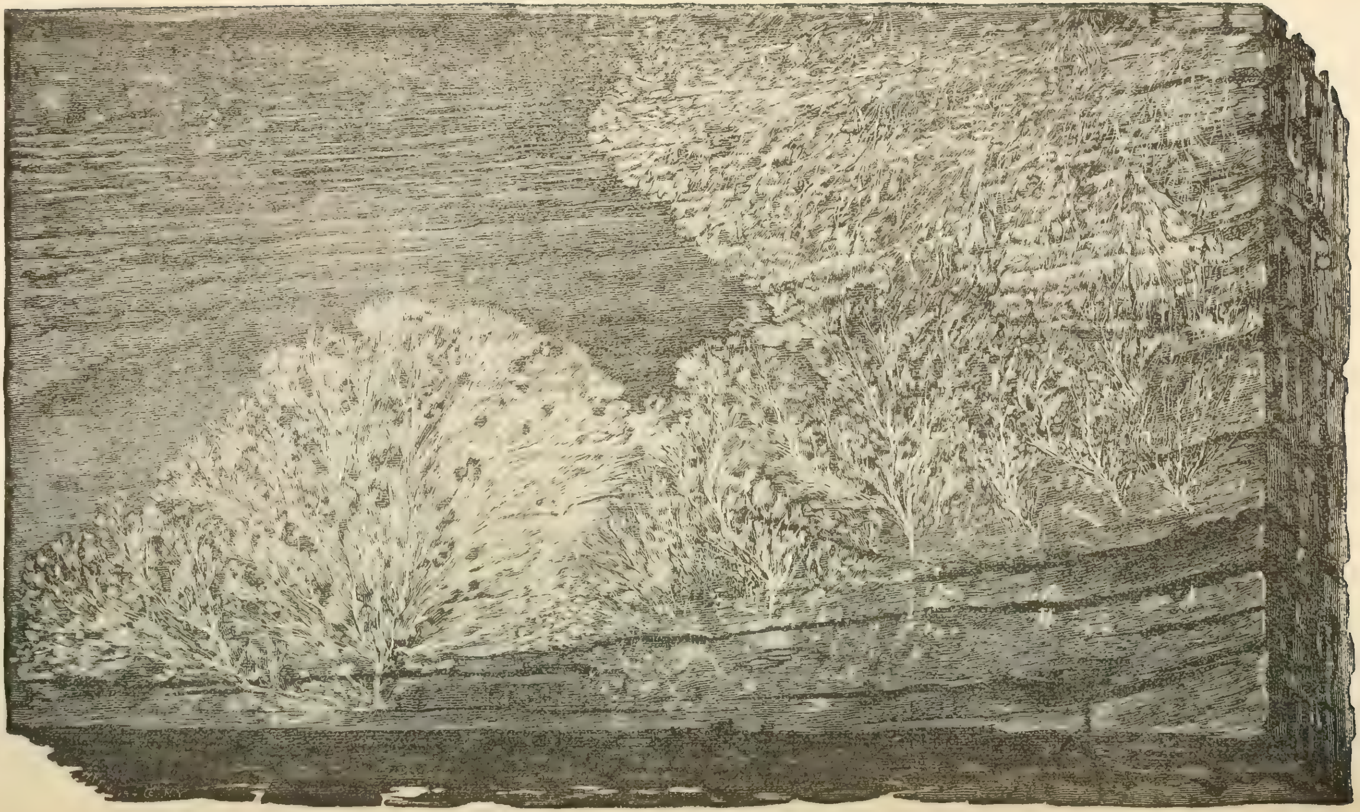

Fig. II. Mycelium of Polyporus radula, one-fourth size.

habitats and growth of definite species of fungi is required to best adapt the means to accomplish the desired work. Now that knowledge of the habitats of species of fungi has been acquired, simple and effective preventive measures suitable for many cases, without treatment, can at once be put into practice.

The study of the decay of timber used for construction is rendered very difficult in most cases, from the fact that the entire structure of the wood may be destroyed by the growth of the mycelium, or its fermentative process, of the fungus without fructification taking place. This is especially true of railroad ties and bridge timbers. So little is seen in proportion to the destruction accomplished, it is due to this feature more than to any other, that the true function of the fungi on wood is not more generally understood by users and consumers of timber. It is not strange the idea is so prevalent that fungi are the accompaniments, instead of the cause of the decay of wood. A growth of mycelium, nearly similar to that shown in Fig. II,[*] of a fungus on the under side of a plank, as in station platforms or between boards when piled in close contact, has not been sufficient in most cases to call attention to the injury, if not the destruction of the plank or timber upon which it is growing.

Fig. II shows the mycelium of *Polyporus radula*, Fr. growing on the under side of a plank from a station platform. After the mycelium has run over the wood in a dense mass, then, by means of the fluids it generates — some of them having an acid reaction — the fibers or wood cells are softened and penetrated by the mycelium, and in this way the process of disorganization is carried on.

This causes the wood to shrink, crack, and finally fall to pieces.

The mycelium of many other species of the higher Fungi differs from this to some extent, but the final effect of its growth on and through the wood is to destroy it. Besides the visible mycelium there are many other growths and ferments, invisible to the eye, which cause a rapid internal decay of large unseasoned painted blocks, such as truck bolsters, transoms, buffers, dock timbers, and end sills to cars.

In warm and damp weather it is not uncommon for such growths to occur upon timber when piled in close contact, according to the species of wood and fungi, in three to eight weeks. In this vicinity the timber on which such growths have started may not be considered sufficiently injured for construction — to be rejected. If it is thoroughly dried or seasoned before use, the decay commenced is checked and will not revive until the wood again becomes moist from external causes. On the contrary, if such wood is put into structures while damp and unseasoned, then painted or confined where the moisture is retained, the decay will continue, the rapidity depending upon the continued amount of damp and warm weather or equivalent conditions. This is commonly and erroneously called "dry rot." Decay of dry wood can not take place without moisture.

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[*] Figures I, II and III are from my paper entitled "Woods and Their Destructive Fungi," in the *Popular Science Monthly*, August and September for 1886, and are used by permission of the editor, Prof. W. J. Youmans.
P. H. D.

It is well established by numerous proofs that seasoned woods last in all conditions of service where it is unfavorable for the growth of fungi, and decay in all conditions where they can grow, unless the timber is judiciously treated. The propagation of fungi upon timber may be either by germination of spores, which are thrown off by thousands when in fructification and disseminated by the air, or by revival of mycelium already on or in the wood.

Besides the ever-present spores of a fungus or its mycelium in timber, three essential conditions in combination are necessary for the decay of wood, or in other words, the growth of a fungus.

First. Moisture, either external or internal.

Second. A temperature between 40° and 120° Fahr., 75° to 90° being the most favorable for the maximum growth of fungi.

Third. A small amount of air, still or nearly quiet. Free circulation or winds check the growth of mycelium when in direct contact with it.

When wood must be exposed to these three conditions, sooner or later, according to its structure and cell contents, fungi grow and destroy it as a result of a natural law of their growth. Therefore, to protect seasoned wood from decay, the combination mentioned must be prevented from taking place by rejecting either one of the three elements; or, if that is impossible, an antiseptic or preservative must be used to prevent the growth of any fungi. This brief statement comprehends, both theoretically and practically, what is necessary to be done to preserve timber structures from decay, but to reduce the principles to practice, so as to meet all conditions of service which may occur, requires a knowledge of the structure of the particular wood, its cell contents, size of stick to be used and care in seasoning. Also a knowledge of the special fungus or fungi attacking the species of wood, and the value and proper use of preservatives and antiseptics.

Species of fungi which I have found upon specific woods when used as railroad ties or in bridges.

The fungi peculiar to white oak, *Quercus alba*, L., are *Polyporus* *applanatus*, Fr.; *P. versicolor*, Fr.; *P. pergamenus*, Fr.; *Dædalea unicolor*, Fr.; *D. quercina*, Pers., and *Lenzites vialis*, Pk.

Polyporus applanatus attacks the heart wood of the white oak tie and is very destructive, and requires a moderate amount of air and moisture for its growth. The characteristic decay of these ties is from the under to the upper side, and is most rapid in stone ballast, or a coarse ballast which retains a little moisture and permits access of air. In a ballast containing considerable loam, which checks the circulation of air, and in wet cuts, the growth of the mycelium is retarded and the durability of the ties increased. In porous ballast, unless wet, the deeper the white oak ties are imbedded the better are the conditions of the growth of the fungi and the more rapid the decay of the ties. On the contrary, only imbedding the ties sufficient for the stability of the track increases the service of the ties by retarding the rapidity of the upward growth of the mycelium.

Polyporus versicolor attacks the sap wood of white oak ties and posts, and to a limited extent the heart wood.

Polyporus pergamenus attacks those ties from which the bark has not been removed.

Dædalea unicolor, *D. quercina* and *Lenzites vialis* have been found on ties laid on railroad bridges.

The structure of the white oak is so firm and dense that it readily sustains the heaviest traffic and it is quite difficult to impregnate the internal cells of the ties. Unless a process has been used which would sterilize the spores lodged in the wood or possible traces of mycelium, the exterior treatment on the unseasoned wood prevents the escape of the internal moisture, the same as a coat of paint. This will hasten decay, for it furnishes the requisite conditions for fermentations and internal growth of mycelium.

The fungi attacking ties of the chestnut, *Castanea vulgaris*, variety *Americana*, A. D. C. (*Castanea vesca*, L., variety *Americana*, Mx.), are *Polyporus sulphureus*, Fr.; *P. spumeus*, Fr. ? ; *P. hirsutus*, Fr.; *P. versicolor*, Fr.; *P. pergamenus*, Fr.; *Agaricus Americanus*, Pk. and *A. sublateritius*, Schæff.

Polyporus sulphureus is also very destructive to telegraph poles and large posts, attacking them near the ground line.

The chestnut contains naturally a stronger antiseptic than the white oak and resists, in contact with the soil, the growth of the fungi until the antiseptic is destroyed by the air, or contact with the rails and spikes. The decay of the chestnut tie is from the top downwards; therefore the deeper the tie is imbedded the longer the body lasts. The full advantage of this is lost in some degree from the decay which takes place around the spikes and under the rails, from the fact that the iron in contact with this wood neutralizes its natural antiseptic. The ends and centers of chestnut ties are sound after the rails have cut into the wood enough to necessitate their removal. The opinion is quite prevalent that they do not decay, but are mostly destroyed by mechanical abrasion; which is not the fact, for the microscope reveals the truth, the presence of the mycelium of a fungus and its destructive work on the wood fibers as an important reason of their rapid abrasion.

The chestnut is lighter than the white oak and many of the wood fibers much coarser, which enables it to be impregnated with an antiseptic quite readily. The large ducts of the two woods are about the same size. The medullary rays of the chestnut are fewer than of the white oak, and it is, therefore, more easily indented as a tie.

The fungus which principally attacks the white cedar, *Chamæcyparis sphæroidea*, Spach., is *Agaricus campanella*, Batsch. It even attacks the growing tree, and in most cases its mycelium is found in the ties when cut. The tree is a very slow grower and, as the lower limbs become shaded, they die and are attacked by their special fungus, and this communicates with the upright cells of the tree. It takes from ten to twenty years before the limbs break off and the wound or orifice is closed by the growing wood. As long as air has access to the mycelium it slowly grows and destroys the wood above and below the wound, the decay spreading laterally very slowly, owing to the small medullary rays and the preservatives they contain. As soon as the orifice is closed, shutting off the air supply, the decay for the time is nearly if not entirely checked. When the trees are cut for ties it is not uncommon to find one or more decayed spots, from one-half to an inch in diameter, extending nearly the entire length of the tie.

The durability of the wood is so great that such ties are not rejected as long as there is sufficient sound wood for spiking. This wood contains a natural preservative and is very durable in contact with the soil, but its structure is too light and delicate to long withstand the heavy traffic of trunk lines, though from its durability it is valuable for those of moderate traffic.

The fungi which destroy ties made of Tamarack, *Larix Americana*, Mx., are *Polyporus pinicola*, Fr. and *Trametes Pini*, Fr.

The fruit of the former always shows traces of phosphoric acid.

This wood is heavier than white cedar, the wood cells being larger, with thicker walls. It is also much stronger because the cells in the annual layer formed in the autumn are nearly solid and in sufficient number to resist indentation or cutting of the ties by the rails under heavy traffic. It is a wood which can be easily treated so as to resist the attacks of fungi, and such ties have lasted over thirty (30) years in actual service.

The fungi attacking the hemlock, *Tsuga Canadensis*, Carr., are numerous. The following is a list so far as observed:

Agaricus melleus, Vahl.
A. campanella, Batsch.
A. porrigens, Pers.
A. succosus, Pk.
A. rugosodiscus, Pk.
A. epipterygius, Scop.
Paxillus atrotomentosus, Fr.
Lenzites sepiaria, Fr.
Stereum radiatum, Pk.
Polyporus lucidus, Fr.
P. benzoinus, Fr.
P. epileucus, Fr.
P. Vaillantii, Fr.
P. subacidus, Pk.
P. medulla-panis, Fr.
P. pinicola, Fr.
P. abietinus, Fr.
P. borealis, Fr.

This wood does not contain any natural antiseptic or preservative, and is readily attacked by a host of fungi, and decays very quickly. It is heavier than white cedar, but lighter than the tamarack, and, when well preserved by metallic antiseptics, makes a valuable tie.

The fungi destroying the wood of yellow pine, *Pinus palustris*, Mill., are *Lentinus lepideus*, Fr. See Fig. I.

Sphæria pilifera, Fr. See Fig. III.

Trametes Pini, Fr., and *Merulius lacrymans*, Fr.

The first is the most destructive to ties in this vicinity, the decay being most rapid on the bottom and extending upwards. In porous ballast the deeper the ties are imbedded the shorter the duration of service, so far as decay is concerned. The mycelium requires considerable moisture for its growth, and some air. A ballast which prevents a free circulation of the latter checks its growth. The sun and wind check its growth and oftentimes a tie which looks sound upon the surface will be so badly decayed underneath that its removal from the track will be necessary

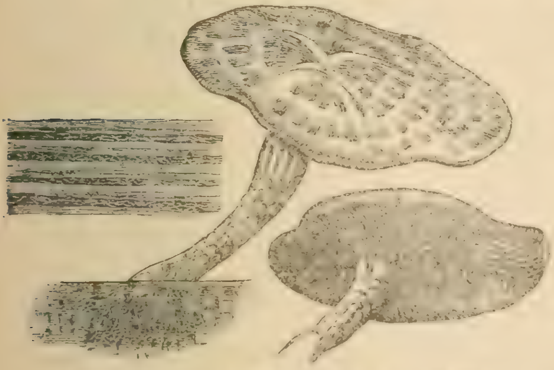

Fig. I. Lentinus lepideus, Fr. on Yellow Pine.

Showing the fruit of the fungus on, and the mycelium in, the wood. The size of the fruit varies from an inch to eight inches in diameter.

The mycelium of this fungus is usually pure white, and is not killed by freezing in the wood. In bridges it is very destructive.

Trametes Pini is also found upon ties of this wood, but is confined to the portions above ground. It will grow and fruit with less moisture than *Lentinus lepideus*, but as far as observed, its rapidity of destruction is not so great.

The fungus shown in Fig. III appears on the sap-wood of yellow pine, giving it a dark, dingy appearance, and if the dampness continues fermentations are set up, destroying the wood.

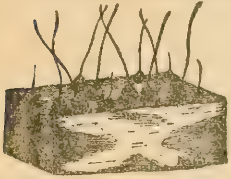

Fig. III. Sphæria pilifera, Fr., magnified five diameters.

Sphæria Pilifera attacks the sap-wood, discolors and quickly destroys this portion of the wood under favorable conditions for its growth. The resinous matter in yellow pine does not protect it in out-door situations, from attacks of the fungi mentioned.

The heart wood of yellow pine is so dense and firm that it is not readily penetrated by antiseptics. The same remarks in regard to imbedding white oak ties apply to this wood. In buildings, yellow pine is attacked by *Merulius lacrymans*, Fr., where it is warm and damp and the air stagnant.

White pine, *Pinus Strobus*, L., when used in bridges and trestles, is attacked by *Lentinus lepideus*, Fr., *Agaricus melleus* Vahl., *Polyporus Vaillantii* Fr. and, in warm inclosures, *Merulius lacrymans* Fr. Both the latter are very destructive.

There are many other woods whose structure is well adapted to their use as railroad ties, but which are so quickly destroyed by fungi as to be of no value unless judiciously treated. These are the beech, birches, elms and maples.

The above will be sufficient to call attention to the practical importance of a study of the fungi, in an economic sense as applied to the decay of wood.

The following simple but effective measures for the preservation of wood can at once be put in practice :

Timber, ties and boards should be seasoned before using, except when submerged. Green wood, according to the species, contains from twenty-five to forty-eight per cent of its weight of sap or moisture, and fully one-half these amounts must be removed to prevent decay in lumber painted on one side, or large sticks of timber painted on all sides, as buffers and car sills, transoms, truck bolsters and timbers.

All lumber and timber should be piled so there can be a free circulation of air around and between each board or stick. Stringers, six to ten inches thick, should first be laid down, and the lumber piled on them in tiers, with narrow sticks between each board at the ends and centers. Grass and weeds should not be allowed to grow near the piles of lumber, impeding the circulation of air under them.

Large timber should be seasoned under sheds and not exposed to the rays of the sun, as the latter dries an exterior portion so rapidly that it prevents the proper escape of moisture from the outside, and internal decay is liable to occur.

If timber, ties or boards are piled in close contact, and remain so for any length of time, dampness will revive and start the growth of mycelium. It is not uncommon to see large sticks of timber, especially for freight cars, taken into the shops partially covered by mycelium, dressed, framed, put into cars and then painted, thus completing the essential condition for slow but certain decay. Such wood has only one-fourth to one-third the life of seasoned wood.

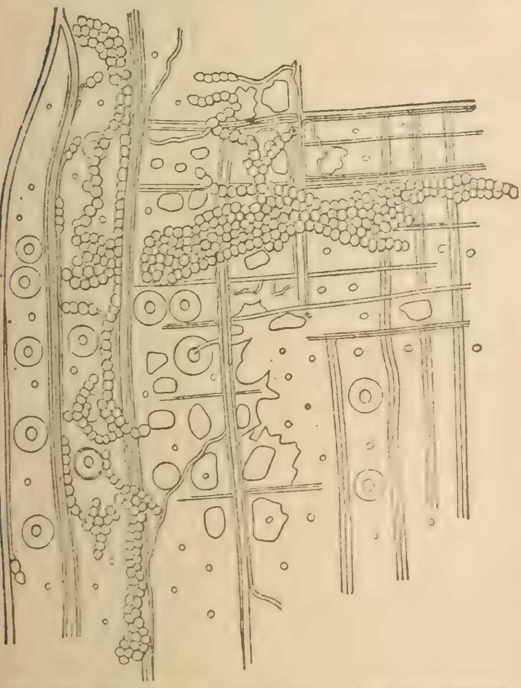

Fig. IV. Magnified 150 diameters, showing fungus growths discoloring the sap-wood of white pine.

Boards, especially those used for sheathing freight cars, when piled in close contact, in summer, are attacked in a short time by fungi, which discolor the wood by filling the cells with growths, often similar to those shown in Fig. IV.

The species of fungi which discolor the sap-wood and then set up fermentations are exceedingly numerous and grow with great rapidity. Some of the forms found in white pine are spheres resembling those shown in Fig. IV.

This wood, on being dried, will remain discolored, but the seasoning will check the decay. Such boards, when put into cars and painted, quickly decay when moisture reaches the unpainted surface. This class of decay is not confined to cars and railroad structures, but exists also in buildings, wharves and docks, where timber forms the major part.

The reasons for the first steps in checking the present unnecessary decay of timber must be first understood before we can derive full benefits of more expensive and complex treatment of timber.

Yours truly.

P. H. DUDLEY.

(F.)

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[From the 42d Report of the New York State Museum of Natural History.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

State of New York.

Made to the Regents of the University, Pursuant to
Chapter 355, of the Laws of 1883.

By CHARLES H. PECK.

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ANNUAL REPORT OF THE STATE BOTANIST.

OFFICE OF THE STATE BOTANIST,
ALBANY, *February* 25, 1889.

To the Honorable the Regents of the University of the State of New York:

I have the honor to present to you my annual report for the year 1888.

Very respectfully.
CHARLES H. PECK.

REPORT OF THE BOTANIST.

To the Honorable the Board of Regents of the University of the State of New York:

GENTLEMEN.—I have the honor of communicating to you the following report:

Specimens of plants for the State Herbarium have been collected by the Botanist during the season now closing, in the counties of Albany, Rensselaer, Saratoga, Essex, St. Lawrence, Jefferson, Lewis, Ulster, Orange and Suffolk. Specimens contributed by correspondents were collected in the counties of Orleans, Chenango, St. Lawrence, Rensselaer, Richmond and Queens.

Specimens representing two hundred and sixty-eight species of plants have been added to the Herbarium during the year, of which two hundred and fifty-three were collected by the Botanist and fifteen were contributed. Of the former, one hundred and eight are new to the Herbarium. The others are improved specimens, or such as exhibit some feature or variation in the species which was not well shown by the specimens already possessed. Of the contributed specimens, eleven species were not before represented, thus increasing the number of species now represented by one hundred and nineteen. Among these are forty species of fungi considered new to science. A list of the species of which specimens have been added is marked A.

Twenty-one persons have contributed specimens. Among the contributions are many extra-limital species not included in the foregoing enumeration. A list of the contributors and of their respective contributions is marked B.

A record of species not before reported, together with descriptions of such as are deemed new, is marked C.

Remarks concerning species previously reported, a record of new localities of rare plants and descriptions of varieties, will be found in a subdivision marked D.

Descriptions of New York species of Clitopilus are given in a section marked E.

The climatic conditions in the early part of the season were very unfavorable to the production of fleshy fungi. Very few even of the most common and ubiquitous species were seen. Dry weather prevailed, and the slight rains which fell were followed by such high winds and low temperature that few of these fungi could grow. But with the advent of more copious rains later in the season, an abundant crop of numerous species appeared. A visit to Essex county at this time was rewarded by large additions to the collection, many of which were new to the Herbarium. Places from which the timber had been cut many years ago and in which beautiful groves of young spruce, tamarack and balsam-fir trees had since grown were especially prolific, though everywhere on the wooded hills and in the mossy tamarack swamps the mycological flora was rich and varied. In these groves three esculent species were noticeable by reason of their great profusion. In every direction and at frequent intervals the brownish-red and tawny-red hues of groups and tufts of *Tricholoma imbricatum*, *T. vaccinum* and *T. transmutans* could be seen. They might have been gathered by bushels. But for the ignorance of the inhabitants concerning these plants, their tables and those of the large boarding houses there might have been supplied with an abundance of the novel but good and wholesome food which these three species would have furnished for the slight labor of gathering them. And other edible species were by no means rare or limited in quantity. *Geoglossum vitellinum,* a small but beautiful and tender fungus grew in such profusion in low woods where the ground is covered with moss, that it was tested as to its edible qualities and found to be very good. *Clitocybe media,* a new species, and *Tricholoma transmutans* were also tested for the first time. I have no hesitation in adding these three species to the list of edible fungi.

While collecting in this region the difference in the liability of certain kinds of wood to fungous attack was very apparent. Old stumps, prostrate trunks and decaying wood of spruce and balsam were inhabited by many species of fungi, while the wood and prostrate trunks of the tamarack and arbor-vitæ or white cedar in similar situations were almost entirely free from them. Thus nature teaches, and the observant mycologist might affirm *a priori*, that the wood of these trees is much more durable than that of the spruce or of the balsam. The frequent use of spruce for fence posts in that region seems strange and unprofitable since tamarack is plentiful there and might be obtained almost as easily and as cheaply as spruce.

The beautiful rhodora, *Rhododendron Rhodora*, is a rare shrub in our State, and was but imperfectly represented in the Herbarium. Having learned of its occurrence on Sam's Point, a high rocky promontory-like spur of the Shawangunk mountains, lying about five miles east of Ellenville, I visited that locality in quest of specimens of it. Its usual habitat is "cool bogs," but here it was found growing in rocky rather than boggy places, though it was especially plentiful in a station not far from the shore of a small lake on the mountain. It was too late in the season to obtain its flowers which appear before the leaves are developed, but fine foliage and fruit-bearing specimens were secured. The broad plateau-like summit of the mountain proved to be an interesting botanical locality. Much of the vegetation is of a shrubby character. About sixty species of plants were noted, of which ten, or one-sixth of the whole, belong to the Heath family. The huckleberry, *Gaylussacia resinosa*, grows here in great profusion, and also the dwarf blueberry, *Vaccinium Pennsylvanicum*. These and the high-bush or swamp blueberry, *Vaccinium corymbosum*, afford a generous crop of fruit, in the picking of which some of the inhabitants of the vicinity were engaged at the time of my visit. The variations in the dwarf blueberry are worthy of notice. The typical form is common and the narrow-leaved dwarf variety is also present. There is also a form with pale green or glaucous foliage, approaching *V. vacillans* in appearance, but apparently distinct from it. This sometimes bore black shining berries destitute of bloom, thus approaching the variety *nigra*. Again it bore berries with the usual bloom, but of an oval shape, being longer than broad. Both this species and the huckleberry manifested their hardy character, their ability to grow under adverse circumstances, and their readiness to occupy all available space by frequently growing in long rows or lines, following the directions of crevices in the surface of the rock. A little soil had accumulated in these crevices, and this enabled these plants to maintain their foothold. These rows of shrubs curve and sometimes cross each other at various angles, and thus present a curious and somewhat artificial aspect. In a few boggy places the cranberry, *Vaccinium macrocarpum*, was growing.

The summit of the mountain is somewhat isolated and is exposed to sweeping winds from every direction. This, together with an altitude of 2,000 feet or more, and a very thin soil, must render the place a trying one for all except the most hardy species of plants. There is a marked tendency to dwarf development. The pitch pines have a starved misshapen appearance and bear cones when but one or two feet high. Specimens of chokeberry but eight or ten inches high were in fruit; also, the shad bush at two feet and the mountain holly at one foot. The narrow-leaved variety of the dwarf blueberry bore fruit though but three or four inches high. The coldness of the station is indicated by the presence of species usually found in more northern latitudes or in more elevated places. The rhodora already mentioned, the trifid rush, *Juncus trifidus*, the three-toothed cinquefoil, *Potentilla tridentata*, the slender cotton grass, *Eriophorum gracile*, and the Greenland sandwort, *Arenaria Greenlandica*, are examples of this kind. That which is manifestly a principle in nature receives confirmation here and is noticed because the existence of such a principle is sometimes overlooked. The principle to which reference is made is that a plant whose strength or vital force has been weakened or impaired by any cause, is more liable to suffer from the attacks of parasitic fungi than one whose vigor is unimpaired. The sheep laurel, *Kalmia angustifolia*, was badly infested by *Dothidella Kalmiæ*, a fungus which attacks the branches of the living plant and causes them to increase in diameter and become blackened. Their leaves do not attain half their usual size and the branch eventually dies. This fungus is a rare one, and I have never seen vigorous healthy appearing plants affected by it. *Rhytisma Canadensis* is a more common fungus that attacks the foliage of the mountain holly, but rarely do its attacks equal in severity those on the plants of Sam's Point. This shrub here shows by its dwarf development that the conditions of growth are unfavorable and that its vigor is impaired. Scarcely a clump of the bushes was seen whose leaves were not excessively spotted by the blackened swellings of this fungus. The wild black cherry, *Prunus serotina*, in other places furnishes an illustration of this same principle. On Long Island, in light sandy soil about Manor and Eastport, where it makes an unthrifty straggling growth, its branches are badly infested by the black knot fungus, *Plowrightia morbosa*, but in those parts of the State where the soil is richer in the elements of plant food, and these trees make a healthy, vigorous growth, they are almost entirely free from this fungus. The practical application of this principle is plain. If we would have our cultivated and useful plants as free as possible from the attacks of injurious parasitic fungi, we must maintain their constitutional vigor and give them a full supply of plant food.

Respectfully submitted,

CHARLES H. PECK.

Albany, *December* 10, 1888.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Hieracium præaltum *Vill.*
Penstemon lævigatus *Soland.*
Physalis Peruviana *L.*
Quercus heterophylla *Mx.*
Q. Rudkini *Britton.*
Setaria verticillata *Bv.*
Apera spica-venti *Bv.*
Equisetum litorale *Kuhl.*
Lepiota augustana *Britz.*
Tricholoma imbricatum *Fr.*
T. subacutum *Pk.*
T. silvaticum *Pk.*
T. nobile *Pk.*
T. brevipes *Bull.*
T. microcephalum *Karst.*
Clitocybe media *Pk.*
C. gallinacea *Scop.*
C. tumulosa *Kalchb.*
C. angustissima *Lasch.*
C. subditopoda *Pk.*
Collybia butyracea *Bull.*
C. acervata *Fr.*
C. ignobilis *Karst.*
Omphalia striæpileus *Fr.*
O. tubæformis *Pk.*
Pleurotus mitis *Pers.*
Hebeloma firmum *Pers.*
Naucoria scirpicola *Pk.*
Galera rufipes *Pk.*
Psathyra silvatica *Pk.*
Cortinarius fulgens *Fr.*
C. lanatipes *Pk.*
C. canescens *Pk.*
C. erraticus *Pk.*
C. cæspitosus *Pk.*
C. lutescens *Pk.*
C. adustus *Pk.*
C. pallidus *Pk.*
Hygrophorus Queletii *Bres.*
H. capreolarius *Kalchb.*
H. hypothejus *Fr.*
H. fuscoalbus *Fr.*
Lactarius atroviridis *Pk.*
L. quietus *Fr.*
Russula purpurina *Q. & S.*
Cantharellus rosellus *Pk.*
Marasmius peronatus *Fr.*
Lenzites heteromorpha *Fr.*
Boletus floccopus *Vahl.*
B. hirtellus *Pk.*
B. subvelutipes *Pk.*
Polyporus piceinus *Pk.*
P. aureo-nitens *Pat.*
P. variiformis *Pk.*
P. rhodellus *Fr.*
P. marginellus *Pk.*
P. sulphurellus *Pk.*
Trametes Pini *Pers.*
Merulius aureus *Fr.*
M. molluscus *Fr.*
Phlebia vaga *Fr.*
P. acerina *Pk.*
Odontia Pruni *Lasch.*
O. fusca *C. & E.*
Thelephora scoparia *Pk.*
Corticium sulphureum *Fr.*
C. rhodellum *Pk.*
C. subincarnatum *Pk.*
Hymenochæte abnormis *Pk.*
Pistillaria viticola *Pk.*
P. alnicola *Pk.*
Mitremyces lutescens *Schw.*
Geaster fornicatus *Fr.*
Phyllosticta Negundinis *S. & S.*
P. serotina *Cke.*
P. Hibisci *Pk.*
Phoma Libertiana *S. & R.*
Diplodia Dulcamaræ *Fckl.*
Hendersonia Mali *Thum.*
Septoria Trichostematis *Pk.*
Sacidium lignarium *Pk.*
Aposphæria aranea *Pk.*
Vermicularia truncata *Schw.*
V. Wallrothii *Sacc.*
Dinemasporium hispidulum *Sacc.*
Glœosporium lagenarium *S. & R.*
G. Physalosporæ *Car.*
G. irregulare *Pk.*
Melanconium Tiliæ *Pk.*
M. foliicolum *Pk.*
Ustilago Osmundæ *Pk.*
Synchytrium aureum *Schrœt.*
Peronospora sordida *Berk.*
Monilia effusa *Pk.*

Monilia aurantiaca *Pk. & Sacc.*
Rhopalomyces Cucurbitarum *B.&R.*
Aspergillus fimetarius *Pk.*
Rhinotrichum ramosissimum *B.& C.*
Virgaria hydnicola *Pk.*
Fusicladium fasciculatum *C. & E.*
Septonema breviusculum *B. & C.*
Cercospora Epilobii *Schnd.*
C. Resedæ *Fckl.*
C. rhuina *C. & E.*
Sporocybe cellare *Pk.*
Helicomyces roseus *Lk.*
Tubercularia fungicola *Pk.*
Tuberculina persicina *Sacc.*
Ombrophila albiceps *Pk.*
Peziza scubalonta *C. & G.*
P. hinnulea *B. & Br.*
Calloria acanthostigma *Fr.*
Valsa coronata *Fr.*
Anthostoma turgidum *Nit.*
Anthostomella limitata *Sacc.*
Nummularia repanda *Fr.*
Chætosphæria longipila *Pk.*
Celidium stictarum *Tul.*
Micrococcus prodigiosus *Cohn.*

Not new to the Herbarium.

Aconitum Noveboracense *Gr.*
Brassica oleracea *L.*
Cakile Americana *Nutt.*
Arabis lyrata *L.*
Hibiscus Moscheutos *L.*
Vitis Labrusca *L.*
V. æstivalis *Mx.*
V. cordifolia *Mx.*
Rhamnus catharticus *L.*
Desmodium Marilandicum *Boott.*
Lespedeza Stuvei *Nutt.*
L. retic. v.angustifolia *Max.*
Rubus strigosus *Mx.*
R. Canadensis *L.*
Pyrus arbutifolia *L.*
Cratægus parvifolia *Ait.*
Proserpinaca pectinacea *Lam.*
Epilobium angustifolium *L.*
Œnothera biennis *L.*
Œ. fruticosa *L.*
Ammannia humilis *Mx.*
Discopleura capillacea *DC.*
Sium lineare *Mx.*
Lonicera oblongifolia *Muhl.*
Eupatorium purpureum *L.*
E. album *L.*
E. teucrifolium *Willd.*
Aster spectabilis *Ait.*
A. concolor *L.*
A. dumosus *L.*
Solidaga odora *Ait.*
S. nemoralis *Ait.*
S. humilis *Pursh.*
S. tenuifolia *Pursh.*
Pluchea camphorata *DC.*
Chrysopsis Mariana *Nutt.*
Coreopsis trichosperma *Mx.*
Artemisia Absinthium *L.*
Erechthites hieracifolia *Raf.*
Centaurea nigra *L.*
Gaylussacia frondosa *T. & G.*
Vaccinium Pennsylvanicum *Lam.*
Rhododendron Rhodora *Don.*
Penstemon pubescens *Soland.*
Pycnanthemum lanceolatum *Pursh.*
Stachys hyssopifolia *Mx.*
Cuscuta Gronovii *Willd.*
C. compacta *Juss.*
Asclepias incarnata *L.*
Atriplex patula *L.*
Amaranthus pumilus *Raf.*
Acnida cannabina *L.*
Polygonum Pennsylvanicum *L.*
P. hydropiperoides *Mx.*
P. maritimum *L.*
Euphorbia Ipecacuanhæ *L.*
Betula glandulosa *Mx.*
Sagittaria variabilis *Engelm.*
Trillium grandiflorum *Salisb.*
Lilium superbum *L.*
Juncus tenuis *Willd.*
J. Greenii *O. & T.*
J. Canadensis *Gay.*
Xyris Caroliniana *Walt.*
Cyperus diandrus *Torr.*
Eriophorum gracile *Koch.*
Scleria reticularis *Mx.*
Scirpus maritimus *L.*
S. debilis *Pursh.*
Carex sterilis *Willd.*
C. scoparia *Schk.*
Aristida dichotoma *Mx.*
Spartina juncea *Willd.*
Bouteloua racemosa *Lag.*

Paspalum setaceum *Mx.*
Panicum filiforme *L.*
P. pauciflorum *Ell.*
P. dichotomum *L.*
P. crus-galli *L.*
Equisetum palustre *L.*
E. variegatum *Schleicher.*
Amanita muscaria *L.*
Lepiota metulispora *B. & Br.*
Armillaria mellea *Vahl.*
Tricholoma laterarium *Pk.*
T. leucocephalum *Fr.*
Clitocybe pithyophila *Fr.*
C. candicans *Pers.*
C. anisaria *Pk.*
C. cyathiformis *Fr.*
C. clavipes *Pers.*
Collybia maculata *A. & S.*
C. cirrhata *Schum.*
C. rubescentifolia *Pk.*
Omphalia chrysophylla *Fr.*
Mycena pura *Pers.*
M. atromarginata *Fr.*
Pleurotus lignatilis *Fr.*
Entoloma sarcophyllum *Pk.*
Clitopilus abortivus *B. & C.*
C. Noveboracensis *Pk.*
Pholiota discolor *Pk.*
Inocybe umboninota *Pk.*
Flammula spumosa *Fr.*
F. alnicola *Fr.*
Agaricus campestris *L.*
Stropharia Johnsoniana *Pk.*
Hypholoma appendiculatum *Fr.*
Coprinus radiatus *Fr.*
Hygrophorus pudorinus *Fr.*
H. coccineus *Fr.*
H. chlorophanus *Fr.*
Hygrophorus miniatus *Fr.*
Lactarius affinis *Pk.*
L. vellereus *Fr.*
L. fuliginosus *Fr.*
L. albidus *Pk.*
Cantharellus minor *Pk.*
C. umbonatus *Fr.*
Marasmius anomalus *Pk.*
Lenzites vialis *Pk.*
L. sepiaria *Fr.*
Boletus rubinellus *Pk.*
B. subtomentosus *L.*
B. porosus *Pk.*
B. flavipes *Pk.*
B. Russellii *Frost.*
B. felleus *Bull.*
Polyporus cæruleoporus *Pk.*
P. chioneus *Fr.*
P. spumeus *Fr.*
P. pubescens *Fr.*
P. biformis *Fr.*
P. versicolor *Fr.*
P. conchifer *Schw.*
P. pergamenus *Fr.*
Trametes sepium *Berk.*
Dædalea confragosa *Pers.*
D. unicolor *Fr.*
Hydnum adustum *Schw.*
H. ochraceum *Pers.*
Irpex lacteus *Fr.*
Sistotrema confluens *Pers.*
Stereum complicatum *Fr.*
S. Curtisii *Berk.*
Clavaria pusilla *Pk.*
C. argillacea *Fr.*
C. fragilis *Holmek.*
C. rugosa *Bull.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mary E. Banning, Baltimore, Md.

Geaster triplex *Jungh.*
G. saccatus *Fr.*
Geaster striatus *DC.*
Tulostoma mammosum *Fr.*

Mrs. E. C. Anthony, Gouverneur, N. Y.

Geaster fornicatus *Fr.*
Geaster mammosus *Chev.*

Mrs. E. G. Britton, New York, N. Y.

Rudbeckia hirta *L.*

Thomas G. Gentry, Philadelphia, Pa.

Polyporus Ribis *Fr.*
P. annosus *Fr.*
Hydnum Schiedermayeri *Heufl.*
Sparassis spathulata *Fr.*
S. laminosa *Fr.*
Corticium rhodellum *Pk.*

F. V. Coville, Oxford, N. Y.

Aconitum Noveboracense *Gr.*
Valerianella radiata *Dupr.*
V. Woodsiana v. patellaria *Gr.*
Polemonium cæruleum *L.*
Arceuthobium pusillum *Pk.*
Quercus ilicifolia *Wang.*
Q. prinoides *Willd.*
Orontium aquaticum *L.*
Polygonum articulatum *L.*
P. Hartwrightii *Gr.*
Listera cordata *R. Br.*
Microstylis ophioglossoides *Nutt.*
Sagittaria graminea *Mx.*
Eleocharis quadrangulata *R. Br.*
Equisetum litorale *Kuhl.*
E. variegatum *Schl.*

Prof. A. N. Prentiss, Ithaca, N. Y.

Graphiola Phœnicis *Poit.*

F. W. Anderson, Great Falls, Mont.

Ustilago Montanensis *E. & H.*

J. N. Bishop, M. D., Plainville, Conn.

Peridermium oblongisporium *Fckl.*

W. H. Hailes, M. D., Albany, N. Y.

Agaricus arvensis *Schæff.*

E. C. Howe, M. D., Lansingburgh, N. Y.

Setaria verticillata *Bv.*
S. Germanica *Bv.*
Apera spica-venti *Bv.*
Panicum pauciflorum *Ell.*
Bouteloua racemosa *Lag.*
Eleocharis diandra *Wright.*
Carex sterilis *Willd.*

C. F. Wheeler, Hubbardston, Mich.

Plowrightia morbosa *Sacc.*

Emily F. Paine, Albany, N. Y.

Aster multiflorus *Ait.*

E. S. Goff, Geneva, N. Y.

Helminthosporium carpophilum *Lev*
Stemonitis herbatica *Pk.*

William Herbst, M. D., Trexlertown, Pa.

Cordyceps capitata *Lk.*

Arthur Hollick, New Brighton, N. Y.

Quercus heterophylla *Mx.*
Q. Rudkini *Britton.*
Quercus Phellos *L.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Corticium rhodellum *Pk.*

Rev. J. L. Zabriskie, Flatbush, N. Y.

Sacidium lignarium *Pk.*
Aposphæria aranea *Pk.*
Sporocybe cellare *Pk.*
Chætosphæria longipila *Pk.*

Hon. W. L. Learned, Albany, N. Y.

Marsilia quadrifolia *L.*

Prof. William Trelease, St. Louis, Mo.

Lycoperdon Missouriense *Trel.*
L. saccatum *Fr.*
Tulostoma fimbriatum *Fr.*

Prof. A. S. Hitchcock, Iowa City, Ia.

Synchytrium Anemones *Wor.*
S. decipiens *Farl.*
Peronospora effusa *Rabh.*
P. Ficariæ *Tul.*
P. gangliformis *DeBy.*
P. Arthuri *Farl.*
P. Euphorbiæ *Fckl.*
P. Lophanthi *Farl.*
P. parasitica *DeBy.*
P. Potentillæ *DeBy.*
P. Halstedii *Farl.*
P. Geranii *Pk.*
P. graminicola *Sacc.*
P. Trifoliorum *DeBy.*
P. pygmæa *Ung.*
P. viticola *DeBy.*
Cystopus candidus *Lev.*
C. Portulacæ *Lev.*
C. Bliti *DeBy.*
Podosphæria tridactyla *DeBy.*
Sphærotheca pannosa *Lev.*
S. Castagnei *Lev.*
Microsphæria extensa *C. & P.*
M. diffusa *C. & P.*
M. Ampelopsidis *Pk.*
M. Russellii *Clint.*
M. Symphoricarpi *Howe.*
M. Friesii *Lev.*
Erysiphe lamprocarpa *Lev.*
E. tortilis *Fr.*
E. Martii *Lev.*
Uncinula adunca *Lev.*
Darluca filum *Cast.*
Peziza Dehnii *Rabh.*
Phyllactinia suffulta *Sacc.*
Phyllachora graminis *Fckl.*
P. Trifolii *Fckl.*
Claviceps purpurea *Tul.*

J. M. Holsinger, Winona, Minn.

Anemone Virginiana *L.*
Ranunculus rhomboideus *Goldie.*
Delphinium azureum *Mx.*
Isopyrum biternatum *T. & G.*
Berberis repens *Lindl.*
Cardamine rhomboidea *DC.*
Silene nivea *DC.*
Malvastrum coccineum *Gr.*
Ceanothus ovalis *Bigel.*
Amorpha canescens *Nutt.*
Baptisia leucophæa *Nutt.*
B. leucantha *T. & G.*
Glycyrrhiza lepidota *Pursh.*
Lathyrus venosus *Muhl.*
Oxytropus Lamberti *Pursh.*
Petalostemon candidus *Mx.*
P. violaceus *Mx.*
Psoralea argophylla *Pursh.*
Heuchera hispida *Pursh.*
Œnothera serrulata *Nutt.*
Eryngium yuccæfolium *Mx.*
Symphoricarpus occidentalis *R. Br.*
Galium concinnum *T. & G.*
Valeriana edulis *Nutt.*
Vernonia fasciculata *Mx.*
Liatris pycnostachya *Mx.*
Kuhnia eupatorioides *L.*
Solidago speciosa *Nutt.*
Aster azureus *Ait.*
Boltonia asteroides *L'Her.*
Coreopsis palmata *Nutt.*
Silphium perfoliatum *L.*
S. laciniatum *L.*
Bidens connata *Muhl.*
Artemisia caudata *Mx.*
A. Ludoviciana *Nutt.*
A. frigida *Willd.*
A. dracunculoides *Pursh.*
Dodecatheon Meadia *L.*
Acerates longifolia *Ell.*
Gentiana alba *Muhl.*
G. Andrewsii *Griseb.*
Phlox maculata *L.*
Ellisia Nyctelea *L.*
Lithospermum angustifolium *Mx.*
Cuscuta glomerata *Chois.*

Lycium vulgare *Dunal.*
Castilleia sessilifolia *Pursh.*
Penstemon gracilis *Nutt.*
P. grandiflorus *Nutt.*
Verbena bracteosa *Mx.*
V. stricta *Vent.*
Hedeoma hispida *Pursh.*
Monarda punctata *L.*
Plantago Patagonica *Jacq.*
Chenopodium glaucum *L.*
Polygonum ramosissimum *Mx.*
Euphorbia marginata *Pursh.*
Parietaria Pennsylvanica *Muhl.*
Cypripedium candidum *Muhl.*
Liparis Lœselii *Richard.*
Leucocrinum montanum *Nutt.*
Streptopus roseus *Mx.*
Vilfa cuspidata *Torr.*

(C.)

SPECIES NOT BEFORE REPORTED.

Aconitum Noveboracense, *Gr.*

Banks of Chenango river, Oxford, Chenango county. July. *F. V. Coville.* The plant doubtfully referred to *A. Napellus*, Twenty-seventh Report, p. 89, belongs to this species, but in it as well as in the Chenango specimen, the racemes are somewhat hairy, contrary to the requirements of the description of the species.

Hieracium prælatum, *Vill.*

Light sandy soil, near Harrisville, Lewis county. Also, along the road between Great Bend and Le Rayville, Jefferson county. July. This is an introduced species, but it is apparently well established in the localities mentioned. In the Synoptical Flora of North America it is said to grow near Carthage and Evans Mills, but I failed to find it in these localities. It is said in *Science* to have spread extensively in St. Lawrence county, where, in one place, it had taken complete possession of a thirty-acre field and had received the local name "king devil," in allusion to its character as a noxious weed.

Lactuca integrifolia, *Bigel.*

Cornwall, Orange county. This plant occurs in many parts of the State, but it has been considered a variety of *Lactuca Canadensis*, and as such has been recorded. But in the Synoptical Flora it has been raised to specific rank and it is now recorded as a species.

Penstemon lævigatus, *Soland.*

Near the canal, two miles west of Rome. June. Probably introduced from the west.

Lycopus sessilifolius, *Gr.*

Riverhead, Long Island. Formerly regarded as a variety of *L. Europæus*, but now raised to specific rank.

Physalis Peruviana, *L.*

Manor, Long Island. August. Spontaneous in gardens.

Quercus heterophylla, *Mx.*

Tottenville, Staten Island. *A. Hollick.*

Quercus Rudkini, *Britton.*

With the preceding. *Hollick.* The observations of Mr. Hollick upon these two oaks and their environment on Staten Island lead him to the conclusion that they are probably hybrid forms.

Sparganium affine, *Schn.*

Adirondack mountains, North Elba, Lake Sanford, etc. In the Manual this stands as a variety of *S. simplex*, but it is probably a good species. The dwarf terrestrial form was found at Edmonds Ponds and referred to *S. simplex* as a variety in the Thirty-fourth Report, p. 55.

Setaria verticillata, *Bv.*

Along the railroad near Lansingburgh. *E. C. Howe.* Introduced from Europe and very rare in this State.

Apera spica-venti, *Bv.*

Lansingburgh. *Howe.* This is *Agrostis spica-venti* L. It also has been introduced from Europe and is not common.

Equisetum litorale, *Kuhl.*

Oneida lake, near the mouth of Fish creek. *Coville.*

Lepiota augustana, *Britz.*

Groves or borders of woods. Meadowdale, Albany county. July. This scarcely differs from *L. cristata* except in the shape of the spores, and it has generally been referred to that species.

Tricholoma imbricatum, *Fr.*

In groves of spruce and balsam trees, *Abies nigra* and *Abies balsamea.* North Elba, Essex county. Sept. Edible.

Tricholoma subacutum, *n. sp.*

[Plate 1. Figs. 1-5].

Pileus at first ovate or broadly conical, then convex and subacutely umbonate, dry, silky and obscurely virgate with minute innate fibrils, whitish tinged with smoky-brown or bluish-gray, darker on the umbo, flesh white, taste acrid or peppery ; lamellæ rather close, slightly adnexed, white ; stem equal, stuffed or hollow, silky-fibrillose, white; spores broadly elliptical or subglobose, .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 1.5 to 3 in. broad ; stem 2 to 4 in. long, 3–6 lines thick.

Woods and groves. North Elba. Sept.

The species is perhaps too closely related to *T. virgatum*, but it is separable by its prominent subacute umbo, paler pileus, hollow stem and hot or peppery taste. The cuticle is separable from the pileus.

Tricholoma silvaticum, *n. sp.*

[Plate 2. Figs. 16-19.]

Pileus convex or nearly plane, dry, glabrous, subumbonate, whitish; lamellæ broad, ventricose, subdistant, adnexed, white ; stem subequal, solid, white ; spores rather large, elliptical, .00045 to .0005 in. long, .0003 broad.

Pileus 1 to 1.5 in. broad ; stem 1 to 2 in. long, 2 to 4 lines thick. Mossy ground in woods. North Elba. Sept. The whole plant is white and is related to *T. leucocephalum*, from which it is separated by its subdistant lamellæ, somewhat umbonate pileus and by the absence of any farinaceous odor. From *T. inamœnum* it is distinguished by the absence of odor and stem not radicated.

Tricholoma nobile, *n. sp.*

Pileus fleshy, convex or nearly plane, dry, minutely punctate or squamulose with innate fibrils, whitish or slightly tinged with yellow, flesh white, taste unpleasant, lamellæ broad, rather close, rounded behind and slightly adnexed, white, slowly changing to pale-yellow where wounded; stem equal, solid, slightly floccose-pruinose, whitish; spores minute, subglobose, .00016 to .0002 in. broad.

Pileus 2 to 4 in. broad; stem 1.5 to 2.5 in. long. 4 to 8 lines thick.

Woods. North Elba. Sept.

The plant is closely related to *T. album*, for which it might easily be mistaken, but its habit is more clearly that of other species of Tricholoma, and it may be distinguished by the minute though rather obscure squamules, the insertion of the lamellæ and the subglobose spores. Its taste is very unpleasant and leaves a burning sensation in the mouth and throat for a long time.

Tricholoma brevipes, *Bull.*

Menands, Albany county. Oct. A small form but apparently not distinct.

Tricholoma microcephalum, *Karst.*

Grassy ground in meadows and pastures. North Elba. Sept.

The specimens have the colors of *T. melaleucum*, but the spores agree better with those of *T. microcephalum.* The fresh plant bears some resemblance to small dark colored forms of *Collybia radicata* or to small *C. fuliginella.* The lamellæ retain their white color in the dried state.

Clitocybe media, *n. sp.*

[Plate 1. Figs. 9-12.]

Pileus fleshy, convex, becoming plane or slightly depressed, dry, dark grayish-brown, the margin often wavy or irregular, flesh white, taste mild; lamellæ broad, subdistant, adnate or decurrent, whitish, the interspaces somewhat venose; stem equal or but slightly thickened at the base, solid, elastic, not polished, colored like or a little paler than the pileus; spores elliptical, .0003 in. long, .0002 broad.

Pileus 2 to 4 in. broad; stem 1 to 2 in. long, 4 to 8 lines thick.

Mossy ground in deep woods. North Elba. Sept.

This species is intermediate between *C. nebularis* and *C. clavipes.* In its general appearance, and in the character of the pileus and stem, it resembles *C. nubularis,* but in the character of the more distant lamellæ and in the size of the spores it is nearer *C. clavipes,* of which it might perhaps be regarded as a variety. Two forms are distinguishable. In one the lamellæ are more distant, slightly rounded behind, and adnate or abruptly terminated, in the other they are closer and more distinctly decurrent. The plant is edible. *C. clavipes* is said to be inedible on account of its spongy substance.

Clitocybe gallinacea, *Scop.*

Woods. North Elba. Sept. Both the stem and the pileus appear as if pruinose or slightly mealy. The taste is bitter and unpleasant.

Clitocybe tumulosa, *Kalchb.*

Groves of spruce and balsam. North Elba. Sept. Densely cæspitose. Edible.

Clitocybe angustissima, *Lasch.*

Low wet ground in woods. North Elba. Sept.

Clitocybe subditopoda, *n. sp.*

Pileus thin, convex or nearly plane, umbilicate, hygrophanous, grayish-brown and striate on the margin when moist, paler when dry, flesh concolorous, odor and taste farinaceous; lamellæ broad, close, adnate, whitish or pale cinereous; stem equal, glabrous, hollow, colored like the pileus; spores elliptical, .0002 to .00025 in. long, .00012 to .00016 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, about 1 line thick.

Mossy ground in woods. North Elba. Sept.

I have separated this form *C. ditopoda* because of the striate margin of the pileus, paler lamellæ and longer elliptical spores.

Collybia butyracea, *Bull.*

Common in groves of spruce and balsam trees. North Elba. Sept.

Collybia acervata, *Fr.*

Woods. North Elba. Sept. *C. simillima* Pk. is doubtless a mere form of this species. *C. spinulifer* Pk. differs in the spinules of the lamellæ.

Collybia ignobilis, *Karst.*

Mossy ground in balsam groves. North Elba. Sept.

Omphalia striæpileus, *Fr.*

Groves of spruce and balsam. North Elba. Sept.

The specimens differ from the description of the species only in color. They are dingy whitish when moist, white when dry.

Omphalia tubæformis, *n. sp.*

Pileus submembranous, glabrous, deeply umbilicate, grayish, the margin decurved or spreading, lamellæ distant, deeply decurrent, white, sometimes branched, with venose interspaces; stem short, equal or tapering downward, hollow, subpruinose, blackish-brown toward the base; spores elliptical, .0002 in. long.

Pileus 8 to 12 lines broad; stem 6 to 10 lines long.

Dead bark of willow. Menands. June.

Pleurotus mitis, *Pers.*

Prostrate trunks of balsam, *Abies balsamea*. North Elba. Sept.

Hebeloma firmum, *Pers.*

Woods. North Elba. Sept.

Naucoria scirpicola, *n. sp.*

[Plate 2. Figs. 6-10.]

Pileus membranous, at first hemispherical and tomentose, then convex or nearly plane, glabrous or adorned with a few floccose, superficial scales, widely striate on the margin, tawny or subochraceous, subatomate when dry; lamellæ subdistant, slightly adnexed, colored nearly like the pileus; stem slender flocculose toward the base, white, attached to the matrix by white tomentose filaments; spores elliptical, .0004 to .0005 in. long, .0003 broad.

Pileus 6 to 10 lines broad; stem 8 to 12 lines long, .5 lines thick.

Base of stems of *Scirpus validus.* Patchogue. Aug.

Easily known by the striate margin and the white tomentum of the young pileus. It belongs to the first section of the tribe Lepidoti in the Friesian arrangement.

Galera rufipes, *n. sp.*

[Plate 2. Figs. 11-15.]

Pileus campanulate or convex, hygrophanous, reddish-tawny and striatulate when moist, whitened on the margin by the remains of the white fibrillose veil, pale ochraceous when dry; lamellæ broad, subdistant, emarginate, yellowish or subochraceous, slightly crenulate on the whitish edge; stem slender, hollow, slightly fibrillose below, pruinose at the apex, reddish-brown; spores subochraceous, .00025 to .0003 in. long, .00016 to .0002 broad.

Pileus 4 to 6 lines broad; stem about 1 in. long, .5 line thick.

Mossy ground in woods. North Elba. Sept.

Psathyra silvatica, *n. sp.*

Pileus membranous, campanulate, glabrous, viscid, hygrophanous, dark-brown and striatulate when moist, grayish-brown when dry; lamellæ broad, ascending, subdistant, ferruginous-brown with a white edge; stem slender, subflexuous, hollow, brown; spores brown, .0004 in. long, .00025 broad.

Pileus 4 to 5 lines broad; stem 1 to 2 in. long, .5 line thick.

Mossy ground in woods. North Elba. Sept.

Cortinarius fulgens, *Fr.*

Mixed woods. North Elba. Sept.

This is a showy fungus. The specimens were wholly yellow except the center of the pileus, which was marked with ferruginous or tawny stains and spots.

Cortinarius (Phlegmacium) lanatipes, *n. sp.*

Pileus fleshy, broadly convex or nearly plane, viscose, grayish, often tinged with yellow, becoming yellowish or subfulvous and virgate with innate tawny fibrils when old, flesh whitish; lamellæ narrow, close, adnexed, pale violaceous when young; stem equal or tapering upward, solid, bulbous, subannulate, loosely fibrillose tomentose below, silky above the annulus, white, veil white; spores elliptical, .0003 in. long, .0002 broad.

Pileus 1 to 3 in. broad ; stem 1 to 2 in. long, 3 to 5 lines thick.

Groves of spruce. North Elba. Sept.

The pale pileus becoming virgate and more highly colored with age and the loose, woolly covering of the stem are the distinguishing features of this species. The bulb is distinct, but scarcely marginate.

Cortinarius (Inoloma) canescens, *n. sp.*

Pileus fleshy, subcampanulate or convex, obtuse or somewhat umbonate, silky or squamulose with innate grayish fibrils, whitish-gray when young, tinged with yellow or rufous hues when old; lamellæ thin, subdistant, rounded behind and adnexed, pallid when young, stem equal or tapering upward from a large, soft, spongy clavate-thickened base, solid, white, peronate and subannulate by the silky-fibrillose white veil, spores elliptical, uninucleate, .0004 to .0005 in. long, .00025 to .0003 broad.

Pileus 2 to 3 in. broad ; stem 2 to 4 in. long, 4 to 6 lines thick.

Abundant and gregarious in groves of spruce. North Elba. Sept.

The species is distinct from its allies by the absence of violaceous hues on the young lamellæ and by its large, spongy bulbous base of the stem. There is no marked odor, but the taste is unpleasant.

Cortinarius (Inoloma) erraticus, *n. sp.*

Pileus fleshy, firm, subcampanulate or convex, obtuse, dry, silky or obscurely squamose with innate fibrils, canescent, often becoming grayish-tawny, flesh dingy-white ; lamellæ subdistant, adnexed, pale-tawny, becoming darker with age ; stem firm, solid, thickened toward the base, white and tomentose below, violaceous above; veil violaceous, often forming an imperfect annulus and sometimes remaining in fragments or floccose scales on the margin of the pileus ; spores elliptical, uninucleate, .0003 in. long, .0002 broad.

Pileus 2 to 3 in. broad ; stem 2.5 to 4 in. long, 3 to 6 lines thick.

Groves of balsam. North Elba. Sept.

This species resembles the preceding one, but is at once distinguished from it by the violaceous color of the veil and the smaller spores.

Cortinarius (Inoloma) cæspitosus, *n. sp.*

Pileus fleshy, firm, convex, often irregular from its crowded mode of growth, silky-fibrillose on the margin, pale-yellow or buff color, often a little darker on the disk, flesh white; lamellæ thin, close, rounded behind and adnexed, whitish when young, then subochraceous; stem nearly equal, solid, subbulbous, cæspitose, silky-fibrillose, subannulate, floccose-villose at the apex, white, spores, elliptical, .0003 to .0004 in. long, .00016 to .0002 broad.

Pileus 2 to 4 in. broad; stem 1 to 3 in. long, 4 to 6 lines thick.

Mossy ground in open places. Catskill mountains. Sept.

The cæspitose mode of growth, yellowish pileus, pale lamellæ and white flesh and stem distinguish this species.

Cortinarius (Dermocybe) lutescens, *n. sp.*

Pileus broadly convex or nearly plane, unpolished, innately fibrillose, squamulose on the disk, dingy-yellow, often with a greenish tint and sometimes marked with reddish or brownish spots, flesh whitish; lamellæ rather broad, close, adnexed, subconcolorous when young, tawny-cinnamon when old; stem equal, firm, silky fibrillose, subannulate from the remains of the veil, colored like the pileus; spores broadly elliptical or subglobose, .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 1 to 3 in. broad, stem 1 to 1.5 in. long, 2 to 3 lines thick.

Mossy ground in woods. North Elba. Sept.

The pileus is somewhat moist in wet weather which makes the species ambiguous between Dermocybe and Telamonia. The fibrils of the pileus indicate a Dermocybe.

Cortinarius (Telamonia) adustus, *n. sp.*

Pileus broadly campanulate or convex, obtuse, hygrophanous, bay-brown when moist, sometimes canescent on the margin, paler when dry, but smoky-brown with age and generally rimose-squamose, flesh yellowish-gray; lamellæ rather thick, distant, subfree, purplish-brown; stem equal, stuffed or hollow, fibrillose, brownish with a white myceloid coating at the base, colored within like the flesh of the pileus; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Pileus 10 to 18 lines broad; stem 1 to 3 in. long, 3 to 5 lines thick.

Balsam groves. North Elba. Sept.

The plant is sometimes cæspitose. The pileus, when old, becomes smoky-brown or blackish and is often chinky or rimose-areolate.

Cortinarius (Hydrocybe) pallidus, *n. sp.*

Pileus thin, broadly convex or nearly plane, glabrous, hygrophanous, pale alutaceous when moist, buff-yellow when dry, flesh concolorous when moist, whitish when dry; lamellæ thin, rather close, ventricose, pallid; stem equal, rigid, hollow, silky-fibrillose, pallid, becoming brownish toward the base; spores subelliptical, .0003 to .00035 in. long, .0002 to .00025 broad.

Pileus 1 to 1.5 in. broad; stem 1.5 to 3 in. long, 1 to 2 lines thick. Mossy ground in wooded swamps. North Elba. Sept.

Hygrophorus Queletii, *Bres.*

Groves of larch, balsam and spruce. North Elba. Sept.

This species was very abundant in the locality mentioned. It is commonly gregarious and sometimes cæspitose. The viscid pellicle is separable, by which character it is clearly distinct from the allied *H. pudorinus.* When cæspitose the stem and pileus are often irregular. It is a fine species, nearly white, but with the pileus most delicately tinted with pale flesh color.

Hygrophorus capreolarius, *Kalchb.*

Mossy ground in woods. North Elba. Sept.

Although this fungus was regarded by Kalchbrenner as a variety of *H. erubescens,* it appears to me to be a good and distinct species. Many specimens were found in the woods of North Elba but they were constant in their characters. The colors are darker than in *H. erubescens,* and the stem, in the American plant at least, is destitute of red dots or points at the top. No specimens of the true *H. erubescens* were found, although in Hungary the two plants grow in the same places.

Hygrophorus hypothejus, *Fr.*

Woods. North Elba. Sept.

Hygrophorus fuscoalbus, *Fr.*

Groves of spruce and balsam. North Elba. Sept. Our specimens are smaller than the European plant, but in other respects they appear to be the same.

Lactarius atroviridis, *n. sp.*

Pileus fleshy, firm, centrally depressed, scabrous-hairy, sometimes rimose-areolate, dark-green, flesh whitish, milk white, taste acrid; lamellæ rather close, adnate or decurrent, whitish, sometimes spotted. or green on the edge; stem equal, short, hollow, colored like, but often paler than the pileus, spotted; spores yellowish-white, subglobose, rough, .0003 in. in diameter.

Pileus 2.5 to 4 in. broad; stem 1 to 2 in. long, 6 to 10 lines thick.

Borders of woods. Sandlake. Aug.

The color of the pileus is a dark olive green, by which and by its dryness the species may be distinguished from *L. sordidus.* The same species occurs in North Carolina, where it was collected by Rev. C. J. Curtis.

Lactarius quietus, *Fr.*

Low woods. North Elba. Sept.

Russula purpurina, *Q. & S.*

Mossy ground in woods of balsam. North Elba, near Lake Placid. This is a beautiful and very distinct species, easily known by its red stem, mild taste and white spores.

Cantharellus rosellus, *n. sp.*

[Plate 1. Figs. 6–8.]

Pileus thin, infundibuliform, regular, glabrous, pale pinkish-red, flesh white; lamellæ narrow, close, dichotomous, deeply decurrent, whitish, tinged with pink; stem equal, slender, solid, subglabrous, often flexuous, colored like the pileus; spores minute, broadly elliptical, .00014 in. long, .0001 broad.

Pileus 4 to 8 lines broad; stem about 1 in. long, scarcely 1 line thick. Mossy ground in groves of balsam. North Elba. Sept. This small species belongs to the section Agaricoides, and is apparently closely allied to *C. albidus,* from which its smaller size and different color distinguish it. The pileus is sometimes deeply umbilicate

Marasmius peronatus. *Fr.*

Thin woods. North Elba. Sept.

Lenzites heteromorpha, *Fr.*

Stumps of spruce. North Elba. Sept.

In the Thirtieth Report I expressed the opinion that *Lenzites Cookei, Dædalea confragosa, Trametes rubescens,* etc., were all forms of one species. In Icones Selectæ Hymenomycetum Professor Fries says that *L. heteromorpha* exhibits three forms, one of which belongs to Lenzites, another to Dædalea and another to Trametes, thus showing too great an affinity between these genera. The form here noted belongs to Dædalea. The lenzitoid form, which is taken as the type of the species, was not detected by me.

Boletus floccopus, *Vahl.*

Woods. Selkirk, Albany county. Aug.

The forms which I have referred to this species scarcely differ from *B. strobilaceus,* except in having the tubes depressed around the stem.

Boletus hirtellus, *Pk. ms.*

Sandy soil under pine trees. Rensselaer lake, Albany county. Oct.

Boletus subvelutipes, *Pk. ms.*

Woods. Caroga and Catskill mountains. July.

Polyporus piceinus, *n. sp.*

Pileus 1 to 2 inches broad, thin subcorky, sessile, often concrescent and imbricated, sometimes resupinate or effuso-reflexed, tomentose, concentrically sulcate and adorned with intervening elevated tomentose lines or narrow zones, tawny-brown or subspadiceous, the thin margin at first golden-yellow, soon tawny, then concolorous; hymenium plane or concave, tawny-cinnamon, the pores minute, subrotund, long, the dissepiments thin, but entire; spores minute, subglobose, .00016 in. broad.

Dead trunks and bark of spruce, *Picea nigra*. Sandlake and Adirondack mountains. July to October.

This is a common species in regions where the spruce abounds, yet it does not appear to have been described, nor does it appear to grow on the trunk or bark of any other tree. The pileus often grows as if attached by the vertex, and thus resembles in form the pileus of *Hymenochaete rubiginosa*, or that of *Trametes mollis*. In color it resembles *Lenzites sepiaria* and *Trametes Pini*, but it is generally a little paler or more tawny. Sometimes the fungus appears to revive the second year, and the pores are then obscurely stratose. This, with the peculiar elevated lines of tomentum on the pileus, suggests a resemblance to *Fomes pectinatus*, but our plant would belong rather to the genus Polystictus, if the more recent genera into which the old genus Polyporus has been subdivided should be adopted. In the beginning a minute orbicular tuft of golden velvety hairs or fibres appear. As this tuft enlarges pores are formed in the center just as in *Polyporus* (*Polystictus*) *abietinus*, which sometimes accompanies it. On the under side of prostrate trunks the fungus remains resupinate, or has but a narrow reflexed margin, but in vertical situations a pileus is formed.

Polyporus aureonitens, *Patouillard in lit.*

Pileus 6 to 18 lines broad, rather thick, corky, sessile, variously concrescent and imbricated, minutely velvety-pubescent when young, soon glabrous, radiately fibrous-striate, the young plant and growing margin at first sulphur-yellow, then golden-tawny, finally tawny-ferruginous, generally concentrically marked with darker lines or narrow zones, somewhat shining, substance tawny; pores minute, subrotund, short, ferruginous with a silvery lustre; spores whitish, or very pale yellowish, elliptical-naviculoid, .0002 in. long, .00016 broad.

Trunks of birches, alders and maple, *Acer spicatum.* Sandlake, Catskill and Adirondack mountains. Aug. and Sept.

Related to *P. radiatus,* and like it belonging to the genus Polystictus of modern classification. It is distinguished by its paler color, often lineate-zonate pileus and paler spores.

Polyporus variiformis, *n. sp.*

Pileus 4 to 10 lines broad, coriaceous or subcorky, nearly plane, somewhat strigose-tomentose, tawny-rufescent, subzonate, often nodulose, sometimes wholly resupinate, substance white; pores rather large, subrotund, angular or even flexuous, white, in oblique situations gaping or lacerated.

Var. *nodulosus.* Pilei very small, narrowly reflexed, forming small nodules.

Var. *resupinatus.* Wholly resupinate or with a narrowly reflexed continuous margin.

Var. *interruptus.* Interruptedly resupinate or anastomosingly creeping, marginless.

Prostrate trunks of spruce, *Picea nigra.* Adirondack mountains, North Elba and Cascadeville. June and Sept.

This species is very variable and seems ambiguous between Polystictus, Dædalea and Trametes. It appears to live through the winter and revive again the next season. It is almost corky in texture. The pores are at first pure white, but they become whitish or pallid with age.

Polyporus rhodellus, *Fr.*

Prostrate trunks of hemlock, *Abies Canadensis.* Adirondack mountains. Aug.

This and the two following species belong to the genus Poria of Persoon.

Polyporus marginellus, *n. sp.*

Resupinate, effused, forming extensive patches, 1 to 3 lines thick; subiculum distinct, firm, subcinnamon, the extreme growing margin white, becoming dark-ferruginous with age; pores at first short, sunk in the tomentum of the subiculum, then longer, minute, rotund, often oblique, brownish-ferruginous, glaucous within, the dissepiments thick, obtuse.

Dead bark and decorticated trunks of spruce, *Abies nigra.* North Elba. Sept.

Remarkable for and very distinct by the narrow downy white margin that borders the growing plant.

Polyporus sulphurellus, *n. sp.*

Resupinate, effused, very thin, following the inequalities of the matrix; subiculum and margin downy, white; pores very short, minute, rotund, very pale-yellow, often with a slight salmon tint, the issepiments obtuse.

Dead bark of poplar. Catskill mountains. Sept.

Trametes Pini, *Fr.*

Railroad ties. Fishkill. Pine trees. Eastport, Long Island. Aug.

Merulius aureus, *Fr.*

Decaying wood of balsam, *Abies balsamea.* North Elba. Sept.

In drying, the specimens become orange colored.

Merulius molluscus, *Fr.*

Bark and decorticated wood of spruce. Averyville, Essex county. Sept.

Phlebia vaga, *Fr.*

Prostrate trunks of acerose trees. North Elba. Sept.

Phlebia acerina, *n. sp.*

Resupinate, effused, irregular, subglabrous beneath, the margin entire; hymenium dingy cream color, becoming darker with age, the folds irregular, obtuse, dentate, subporous.

Wood and bark of maple, *Acer saccharinum.* Mechanicville. July.

Closely related to *P. vaga* from which it appears to be distinct by its entire nearly glabrous margin and less tuberculose or papillate hymenium.

Odontia Pruni, *Lasch.*

Dead bark of wild red cherry, *Prunus Pennsylvanica.* Adirondack mountains. Sept.

Odontia fusca, *C. & E.*

Decaying wood of spruce. Averyville. Sept.

Thelephora scoparia, *n. sp.*

[Plate 2. Figs. 20, 21.]

Incrusting small plants, mosses, etc., here and there emitting fascicles of branches, united below, subterete, acuminate or fimbriately incised, at first pale or whitish, soon ferruginous brown; hymenium even, pruinose-pubescent; spores angular, rough, colored, .0003 to .0004 in. long.

Bethlehem and Selkirk. Aug.

This has the habit and color of *T. laciniata,* but it forms tufts of branches rather than pilei and the hymenium is even. Sometimes it overtops the stems which it incrusts and then it appears stipitate and branched above.

Corticium sulphureum, *Fr.*

Prostrate trunks of balsam. North Elba. Sept.

Corticium rhodellum, *n. sp.*

Thin, membranous, adnate; subiculum and fimbriate margin white or whitish; hymenium slightly pruinose, rosy-incarnate, bearing metuloids .0016 to .002 in. long, .0004 to .00045 broad; spores elliptical, naviculoid, .00016 to .0002 in. long.

Decaying wood. Lyndonville, Orleans county. *C. E. Fairman,* M. D. Specimens have also been found growing on the bark of poplar and communicated to me by *Mr. T. G. Gentry* of Philadelphia.

The species differs from *C. carneum* B. & C. in its brighter color and in the even, not rimose, hymenium. From *C. roseum* Pers. it is distinct by the presence of metuloids and its smaller spores. It belongs to the genus Peniophora of Cooke.

Corticium subincarnatum, *n. sp.*

Effused, thin, pale-yellow, soon subincarnate, even, pruinose-pulverulent, the broad scarcely determinate margin sulphur yellow; spores elliptical, minute, .00016 in. long, .00008 broad.

Decorticated wood of spruce. North Elba. Sept.

Hymenochæte abnormis, *n. sp.*

[Plate 1. Figs. 13–16.]

Pileus effuso-reflexed, coriaceous or subcorky, about six lines broad, generally imbricated and wavy or complicate, tomentose, obscurely zonate, sometimes tuberculate or uneven, blackish; hymenium cinereous, pruinose, setulose with pale-ferruginous blunt setæ; spores oblong, colorless, .0004 to .0005 in. long, .0002 to .00025 broad.

Decaying wood of spruce in wet places. Adirondack mountains. Sept.

Remarkable for the colored but unusually blunt and subcylindrical setæ of the hymenium. These are sometimes paler above and sometimes slightly rough.

Pistillaria viticola, *n. sp.*

[Plate 2. Figs. 25–27.]

Club ovoid or obovoid, obtuse, glabrous, white, about equal to or only half as long as the stem; stem cylindrical or slightly tapering upward, glabrous, .5 to .75 line long, white; spores elliptical, .00025 to .0003 in. long.

Dead stems of grape vine, *Vitis æstivalis.* Ellenville, Ulster county.

Pistillaria alnicola, *n. sp.*

[Plate 2. Figs. 22-24.]

Club ovate or oblong, obtuse, sometimes compressed or irregular, one to two lines high, sessile or with a very short stem-like base, erumpent, glabrous, varying in color from brownish-ochre to bay-red, whitish and spongy within; basidia with four sterigmata; spores ovate, pointed at one end, .0004 to .0006 in. long, .00025 to .0003 broad.

Dead branches of alder, *Alnus incana.* Adirondack mountains. Cascadeville. Sept.

Mitremyces lutescens, *Schw.*

Shaded banks. Ellenville. July. This is considered by Dr. G. Massee to be synonymous with *Calostoma cinnabarina*, Desf.

Geaster fornicatus, *Fr.*

Gouverneur, St. Lawrence county. *Mrs. E. C. Anthony.*

The specimens have numerous rays and belong to var. *multifidus.* Mrs. A. also sends from the same locality a specimen of *G. mammosus*, Chev.

Phyllosticta Negundinis, *Sacc. & Speg.*

Living leaves of box elder, *Negundo aceroides.* Patchogue. Aug.

Phyllosticta serotina, *Cke.*

Living leaves of wild black cherry, *Prunus serotina.* Manor, Long Island. Aug. The wild black cherry is very common in the eastern part of Long Island, and its leaves are often spotted by this fungus. Its branches also are frequently attacked by *Plowrightia morbosa*, the fungus that causes the "black knot," although in the northern and eastern parts of the State this tree is almost entirely exempt from the attacks of this fungus.

Phyllosticta Hibisci, *n. sp.*

Spots suborbicular, whitish or reddish-gray, with a narrow brown border, 2 to 4 lines broad; perithecia minute, .004 in. broad, epiphyllous, black; spores oblong, .0003 to .0004 in. long, .00012 to .00015 broad, usually with one or two nuclei; sporophores simple or branched, .0004 to .0008 in. long.

Living leaves of swamp rose mallow, *Hibiscus moscheutos.* Eastport and Patchogue. Aug.

Phoma Libertiana, *Speg. & Roum.*

Corticated branches of hemlock, *Abies Canadensis.* Sandlake. Aug.

Diplodia Dulcamaræ, *Fckl.*

Dead stems of bittersweet, *Solamun dulcamara.* Sandlake. Aug. The spores are at first simple, and in this condition the fungus might be referred to the genus Sphæropsis.

Hendersonia Mali, *Thum.*

Living leaves of apple tree. Phœnicia, Ulster county. Sept. In our specimens the perithecia are rather smaller than in the type.

Septoria Trichostematis, *n. sp.*

Spots mostly large, but one or two on a leaf, brownish-gray, generally with a broad purplish margin; perithecia epiphyllous, minute, .003 to .004 in. broad, black; spores bacillary, slender, straight or curved, .0012 to .0016 in. long.

Living leaves of blue curls, *Trichostema dichotomum.* Manor. Aug.

Sacidium lignarium, *n. sp.*

Perithecia numerous, scattered or aggregated, thin, membranous, clypeate, astomous, quadrangular or pentangular, black, easily separable from the matrix; spores minute, oblong, colorless or faintly colored, .00016 in. long, .00008 broad.

Bottom of a basswood barrel in a cellar. Flatbush, Long Island. April. *Rev. J. L. Zabriskie.*

Aposphæria aranea, *n. sp.*

Perithecia scattered or gregarious, superficial, astomous, subglobose, submembranous, rupturing irregularly, black, involved in and generally seated on pale webby filaments; spores .00012 to .00016 in. long, about .0001 broad.

With the preceding. *Zabriskie.*

Vermicularia truncata, *Schw.*

Old bean pods. Menands. Oct.

Vermicularia Wallrothii, *Sacc.*

Kind of squash, *Cucurbita melopepo.* Menands. Sept.

Dinemasporium hispidulum, *Sacc.*

Dead wood of *Viburnum dentatum.* West Albany. May.

Glœosporium lagenarium, *Sacc. & Roum.*

Rind of squash, *Cucurbita melopepo.* Menands. Nov.

Glœosporium Physalosporæ, *Car.*

Ripening grapes. Menands. Oct.

Glœosporium irregulare, *n. sp.*

Spots large, irregular, generally but one or two on a leaflet, brown or reddish-brown ; acervuli numerous, hypophyllous, minute ; spores elliptical, obtuse, .0003 to .0004 in. long, .00016 to .0002 broad, oozing out and forming minute subglobose pale or whitish masses.

Living leaves of ash trees, *Fraxinus Americana.* Menands. June.

In the locality mentioned, this fungus has appeared on several trees two years in succession. In some instances nearly all the leaves are affected by it, and in consequence the foliage appears badly blighted and injured as if by fire.

Melanconium Tiliæ, *n. sp.*

Heaps subcutaneous, minute, scarcely elevating the epidermis ; spores ovate or subelliptical, involved in mucus, black, .0009 to .0011 in. long, .0007 to .0008 broad, oozing out and forming small black dot-like stains on the matrix.

Dead branches of basswood, *Tilia Americana.* Mechanicville. July.

This species may be easily recognized by its minute heaps, small spore stains, and by having its spores involved in mucus.

Melanconium foliicolum, *n. sp.*

Spots orbicular, brown or reddish-brown, surrounded by a narrow darker border ; heaps hypophyllous, minute, black ; spores elliptical, slightly colored, .0004 to .0005 in. long, about .0003 broad.

Dead spots on living leaves of sassafras. Manor. Aug.

Ustilago Osmundæ, *Pk.*

Living fronds of royal fern, *Osmunda regalis.* Knox, Albany county. July.

The fungus attacks the apical part of sterile fronds and thickens and distorts the frond tissues. The fresh specimens show that it is scarcely a good Ustilago, inasmuch as the spores appear to be borne at the surface, and not to be deeply seated as in genuine species. Its true affinity is not yet clear. The margin of the affected part of the frond is sometimes whitened by minute fungous filaments. The spores are globose, reddish-brown, slightly rough, .0004 to .0005 in. in diameter. Probably it is an aberrant Uredo.

Synchytrium aureum, *Schrœt.*

Living leaves and petioles of strawberry, *Fragaria Virginiana.* Sandlake. June.

Peronospora sordida, *Berk.*

Living leaves of figwort, *Scrophularia nodosa* v. *Marilandica.* Knowersville, Albany county. July.

Monilia effusa, *n. sp.*

Patches at first small, soon confluent and widely effused, thin, pulverulent, pale tawny or ochraceous; hyphæ hyaline, septate, spores catenulate, limoniform, apiculate at one or both ends, .0006 to .0007 in. long, .0004 to .0005 broad.

Decaying wood. Jayville, St. Lawrence county. July.

From *M. aurea* it differs in its smaller spores and more effused mode of growth.

Monilia aurantiaca, *Peck & Sacc.*

Tufts pulvinate, superficial, rather compact, soon fragile, velvety-pulveraceous, 1 to 6 lines in diameter, sometimes confluent, orange-salmon color; hyphæ radiating, .0004 to .0005 in. broad, irregularly branched, septate as well as the branches, the joints at length separating; spores heteromorphous, at first globose or elliptical, .0004 to .0005 in. broad, or .0007 in. long, .0004 broad, then sublimoniform, forming rather long chains, .0004 to .0005 in. long, .0003 to .00035 broad, the chains often branched.

Dead bark of *Ailanthus glandulosus.* Manor, L. I. Aug.

Related to *M. aureofulva* and *M. sitophila,* but distinct in the color of the tufts and in the form and size of the spores.

Rhopalomyces Cucurbitarum, *B. & R.*

Flowers and fruit of squash. Menands. Aug.

Aspergillus fimetarius, *n. sp.*

White; sterile hyphæ creeping, fertile erect, simple, septate, slightly enlarged at the apex; basidia oblong or subcylindrical, pointed at the apex, .0005 to .0006 in. long; spores globose, .00016 to .0002 in. long.

Excrement of deer. Adirondack mountains. July.

The species is very closely allied to *A. candidus,* but is distinguished by its septate hyphæ, larger spores and different habitat.

Rhinotrichum ramosissimum, *B. & C.*

Decaying oak wood and bark; also on maple wood. Menands and Selkirk. Aug.

Our specimens agree with the description of *R. Curtisii* in the character of the terminal joints of the hyphæ, but in color and spore character they correspond better with the description of *R. ramosissimum.*

Virgaria hydnicola, *n. sp.*

Hyphæ minute, forked or ternately divided, brownish, the ramuli subulate, slightly divergent; spores globose, minute, .0001 to .00015 in. broad.

On a white resupinate Hydnum to which it imparts a smoky brown color. North Elba. Sept.

Fusicladium fasciculatum, *C. & E.*

Living leaves of ipecac spurge, *Euphorbia Ipecacuanha.* Manor. Aug.

Septonema breviusculum, *B. & C.*

Bark of living maple, *Acer saccharinum.* Menands and Knowersville. May and June. This fungus forms a thin black crust over the bark.

Cercospora Epilobii, *Schnd.*

Living leaves of willow herb, *Epilobium angustifolium.* Harrisville and Jayville. July.

Cercospora Resedæ, *Fckl.*

Living or languishing leaves of mignonette, *Reseda odorata.* Menands. Aug. and Sept.

On living leaves the spots are whitish or grayish, but on dead leaves they often become blackish.

Cercospora rhuina, *C. & E.*

Living leaves of dwarf sumac, *Rhus copallina.* Manor. Aug.

Our specimens differ from the type in having the spots blackish and may be designated as variety *nigromaculans.*

Sporocybe cellare, *n. sp.*

Stems .04 to .07 in. long, cylindrical or tapering upward from an enlarged or subbulbous base, straight, blackish-brown, composed of densely compacted filaments except on the surface, capitulum broader than the stem, tawny-brown; spores very numerous, globose, colored, .0002 to .00025 in. broad.

On a barrel in a cellar. Flatbush. March, *Zabriskie.*

It differs from *S. bulbosa Schw.* in the character of the spores.

Helicomyces roseus, *Lk.*

Dead bark of poplar, *Populus tremuloides.* Adirondack mountains. Sept.

Tubercularia fungicola, *n. sp.*

Tubercles minute, scattered, subglobose, .007 to .014 in. broad, orange colored; spores oblong or subfusiform, hyaline, straight or slightly curved, .0004 to .0006 in. long, .00012 broad.

On old *Hypoxylon coccineum.* Knowersville. May.

Tuberculina persicina, *Sacc.*

Parasitic on the Æcidium of *Clematis Virginiana.* Near Lowville, Lewis county. July.

This is apparently a very rare fungus in this State.

Ombrophila albiceps, *n. sp.*

[Plate 2. Figs. 1-5.]

Pileus hemispherical or convex, tough, whitish or sometimes with a faint incarnate tinge, 2 to 4 lines broad; stem equal or slightly thickened at the base, tough, stuffed, appearing as if externally coated with gluten in wet weather, pallid or reddish-brown, 4 to 8 lines long, 1 to 1.5 lines thick; asci narrow, cylindrical, paraphysate, 8-spored, .0016 to .002 in. long, .0002 to .00025 broad; spores minute, elliptical, .0002 in. long, .00012 broad.

Decaying wood of deciduous trees. North Elba. Sept.

This is a very distinct species, easily separated from its allies by its peculiar colors and its external resemblance to species of Leotia. The central pith of the stem is accurately limited and sometimes in drying the stem becomes hollow.

Peziza scubalonta, *C. & G.*

Cow dung. North Elba. Sept. In the dried specimens the hymenium sometimes becomes rimose or perforated by contraction.

Peziza hinnulea, *B. & Br.*

Burnt ground. Menands. Aug.

Calloria acanthostigma, *Fr.*

Decorticated wood of deciduous trees. Adirondack mountains. Aug.

Valsa coronata, *Fr.*

Dead bark of maple, *Acer saccharinum.* Catskill mountains. Sept.

Anthostoma turgidum, *Nits.*

Dead bark of beech, *Fagus ferruginea.* Selkirk. Aug.

Anthostomella limitata, *Sacc.*

Dead stems and branches of swamp honeysuckle, *Lonicera oblongifolia.* Knox. July.

Nummularia repanda, *Fr.*

Dead branches and trunks of mountain ash, *Pyrus Americana.* North Elba. Sept.

Externally this species resembles *N. discreta,* but it may be distinguished by its larger size dentate-lacerated margin of the stroma and ovate spores.

Chætosphæria longipila, *n. sp.*

Perithecia very small, gregarious, black, seated on or involved in a subiculum of very long, slender, webby, cinereous or grayish-brown filaments; asci oblanceolate, the sporiferous part .0016 in. long, .0005 broad; spores crowded or biseriate, straight, .0004 to .0005 in. long, .0002 to .00025 broad, triseptate, the two intermediate cells colored, the terminal ones hyaline.

Old barrel in a cellar. Flatbush. March. *Zabriskie.*

This is related to *C. phæostroma* and *C. phæostromoides*, but it differs from both in its paler subiculum and shorter straight spores.

Celidium stictarum, *Tul.*

Receptacles of lungwort lichen, *Sticta pulmonaria.* Catskill and Adirondack mountains, also in Sandlake. The fungus blackens the surface of the apothecia and thus makes the affected ones easily recognizable.

Micrococcus prodigiosus, *Cohn.*

Stale bread in damp places. Menands. Aug.

(D.)

REMARKS AND OBSERVATIONS.

Proserpinaca pectinacea, *Lam.*

Manor, L. I. Aug. In the State Flora, Vol. 1, p. 241, Dr. Torrey admits this plant on the authority of Dr. Douglas, and says that "it will very probably yet be found on Long Island." It was found, with *Ammannia humilis*, growing on the shores of a pond about half a mile Northwest of Manor. It is a very rare species.

Lonicera oblongifolia, *Hook.*

Tamarack swamp near Knox. Some of the plants in this locality produce united berries, others have them nearly distinct.

Valerianella Woodsiana, *Walp.* var. patellaria, *Gr.*

Alluvial meadows along the Chenango river. Oxford. *Coville.*

Solidago nemoralis, *Ait.*

Elizabethtown, Essex county. A remarkable form with white rays. The general hue of the panicles is creamy yellow.

Rudbeckia hirta, *L.*

This is already a pestilent weed in some parts of the State. In some meadows it has become as plentiful as the white or ox eye daisy. A double flowered form, probably from Marion, Wayne county, was communicated by Mrs. E. G. Britton.

Coreopsis trichosperma, *Mx.* var. tenuiloba, *Gr.*

Near Eastport and Patchogue. Aug. In the Synoptical Flora this variety is attributed to peat bogs in Indiana and Illinois, but either it or a very closely allied form occurs on Long Island. The leaves and their divisions are linear and entire or merely hispidulous-serrulate. The awns of the achenia are variable.

Rhododendron Rhodora, *Don.*

Sam's Point, Ulster county. July. This locality for one of our rare plants was first made known by the late *C. F. Austin.*

Polemonium cæruleum, *L.*

Abundant in alder swamps and bogs in McDonough and Preston, Chenango county. *Coville.*

Celtis occidentalis, *L.*

Banks of Black river near Lowville. This is a form having the leaves variegated with pale greenish yellow angular spots or blotches. The blackberry, *Rubus villosus,* and the red raspberry, *Rubus strigosus,* occasionally occur with variegated foliage.

Arceuthobium pusillum, *Pk.*

Black spruce in Preston, Plymouth and German, Chenango county. *Coville.*

Betula glandulosa, *Mx.*

Abundant in a tamarack swamp between Lake Bonaparte and Harrisville. The shrubs are four to six feet high, and by their size the pale lower surface of the leaves and the longer fertile aments they appear to connect with *B. pumila.* But the branches are somewhat glandular dotted and for this reason the plants are referable to *B. glandulosa.*

Sagittaria graminea, *Mx.*

Abundant about Lake Geneganslet in McDonough. *Coville.*

Epipactis Helleborine, *Crantz, var.* viridens, *Irm.*

This rare orchidaceous plant which was discovered near Syracuse a few years ago and subsequently near Buffalo, has now been detected in a third locality near Otisco, Onondaga county, by *Dr. W. W. Munson.*

Trillium grandiflorum, *Salisb., var.* variegatum, *Pk.*

Additional specimens sent by Mrs. Goodrich show a great variation in the coloring of the flowers. In one specimen two petals had a narrow green dash in the center, the other one was wholly white. In another specimen the central green line is replaced by a row of green spots. Two specimens have the petals almost wholly green, the extreme apex and adjacent margins only being white. Between these extremes all degrees of variation in the extent of the green coloring exist. The plants grew in abundance, about a hundred specimens having been found. Mrs. G. adds in an accompanying note that two specimens were found in which not only the petals but also the sepals were wholly white.

Eleocharis quadrangulata, *R. Br.*

Lake Neahtowantah, near Fulton, Oswego county. *Coville.*

Paspalum setaceum, *Mx.*

A form was found near Manor, often having two spikes from the upper sheath.

Equisetum variegatum, *Schl.*

Greene, Chenango county, *Coville.* Also near Lerayville, Jefferson county.

Equisetum palustre, *L.*

Banks of the railroad near Lake Bonaparte, Lewis county. Sometimes two or three fertile stems spring from the same root.

Tricholoma transmutans, *Pk.*

Common in spruce and balsam groves in North Elba, where it is associated with *T. imbricatum* and *T. vaccinum*, which it resembles in color, and in its farinaceous odor and taste, but from which it is readily distinguished by its viscid pileus. It belongs to the group of which *T. fulvellum*, *T. flavobrunneum* and *T. albrobrunneum* are representatives, and, though closely allied to these species, it is quite distinct from them. It is an edible species.

Clitopilus Noveboracensis *var.* brevis, *n. var.*

Pileus abundantly rivulose, plane or slightly depressed, pallid or subrufescent and pure white on the margin when moist, wholly white or whitish when dry; lamellæ slightly decurrent; stem short, about one inch long.

Groves of spruce and balsam. North Elba. Sept.

This variety manifests a tendency to grow in lines or in arcs of circles. It is often somewhat cæspitose. The white margin of the moist pileus is due to a silky web of interwoven white filaments. This with the short stem and less deeply decurrent lamellæ separate the variety from the typical form.

Polyporus cinnabarinus, *Jacq.*

The usual habitat of this fungus is wood of deciduous trees, but it occasionally occurs on hemlock, *Abies Canadensis.*

Polyporus abietinus, *Fr. var.* **irpiciformis** *n. var.*

Resupinate, at first orbicular, then often confluent in irregular patches, thin, the margin fimbriate, whitish; hymenium pallid, composed of radiating lamellæ gashed into subulate or fimbriate irpiciform aculei.

Bark of balsam, *Abies balsamea.* North Elba. Sept.

Some fungi belonging to the Polyporei are very variable and break over the generic limits assigned them. The species now under consideration apparently occurs in four well-marked forms, two pileate and two resupinate, one of each belonging to the genus Polyporus, or, as some classify it, to Polystictus, and one of each to Irpex, and therefore to the distinct order Hydnei.

The typical pileate form is very common in the Adirondack forests growing on trunks and branches of spruce, balsam, larch and sometimes on pine and hemlock. A resupinate form is also common. The form known as *Irpex fuscoviolaceus*, which is regarded by some mycologists as belonging to this species, is much more rare and has been observed by me on spruce only. But I have found it growing on the same trunk and in company with *P. abietinus*, and so closely resembling it in all respects save in the hymenium that it is difficult to believe it a distant species. The hymenium is similar in color to that of *P. abietinus*, but it is composed of radiating lamellæ (as in Lenzites), which are incised so as to form teeth or aculei as in Irpex. The discovery of the resupinate variety, now described as var. *irpiciformis*, strengthens the belief in the specific unity of *Irpex fuscoviolaceus* and *Polyporus abietinus*, for here again we have the radiating lamellæ incised into irpiciform teeth, thus showing the structure of the hymenium to be the same as in *I. fuscoviolaceus*, and besides this, we have a variation in color corresponding to that which occurs in the hymenium of *P. abietinus*. For in the resupinate form of *P. abietinus* the color of the hymenium, even in young and growing specimens is often much paler than in the typical pileate form, exhibiting scarcely a trace of violaceous color, but showing rather a pallid hue with a slight suggestion of pale cinnamon. This peculiar color is seen in variety *irpiciformis* and enforces the conclusion that it is not a distinct species of Irpex but rather a mere variety of *P. abietinus*. It indicates a very intimate connection between Lenzites among the Agaricini, Polyporus among the polyporei and Irpex among the Hydnei. Such a blending of generic characters in one species is not very assuring to our present estimation of generic limits.

Corticium cinereum *Fr. var.* **fumigatum,** *Thum.*

Dead branches of hickory, *Carya alba.* Selkirk. June.

Geoglossum vitellinum, *Bres.*

Very abundant and luxuriant in mossy damp ground in the woods of North Elba. It was tested for its edible quality and found to be good. Its small size would ordinarily make it of but little importance as an esculent fungus, but this objection to it is in great measure obviated when it occurs in great profusion. It maintains the irregular character of the species even when growing luxuriantly.

(E.)

NEW YORK SPECIES OF CLITOPILUS.

Clitopilus, *Fr.*

Stem fleshy or fibrous, diffused above into the pileus, of which the margin is at first involute. Hymenophore continuous with the stem. Lamallæ equally attenuated behind and subdecurrent, neither separating nor sinuate.

Terrestrial, often strong smelling, the pileus more or less depressed or umbilicate, the umbilicus similarly colored.

This genus belongs to the rosy or pink-spored series, and corresponds to Clitocybe in the white-spored series. It is separated from Eccilia by its fleshy stem, and from Entoloma by its adnate or decurrent lamellæ. The species are less numerous than those of Clitocybe, and some are separable from that genus by a slight difference in the color of the spores only. The spores of most of the species have the usual flesh-colored hue of the series Hyporhodii, but in two species they are more highly colored, exhibiting a rosy-red hue, while in a few species they are very pale, barely tinted with flesh color when caught on white paper. If caught on black or brown paper they appear sordid or whitish, and the species might then be sought in the genus Clitocybe. The spores of different species vary also in size and shape, thus furnishing important specific characters. Some of the species are edible, others are bitter and unpleasant in flavor. A farinaceous odor is observable in several species, and this is sometimes accompanied by a bitter taste. Most authors follow Fries in the arrangement of the species, dividing them into two groups, the Orcelli, distinguished by deeply decurrent lamellæ and an irregular, scarcely hygrophanous pileus, with the margin at first flocculose; and Sericelli, distinguished by adnate or slightly decurrent lamellæ, and a regular silky or hygrophanous-silky pileus with a naked margin. This arrangement is not strictly applicable to some of our species. *C. abortivus*, *C. erythrosporus* and *C. Noveboracensis* have the lamellæ deeply decurrent in some individuals, adnate or slightly decurrent in others, and therefore the same species might be sought in both groups. For this reason, the primary grouping of our species has been made to depend on the variation in the spore colors. By far the greater number of our species appear to be peculiar to this country, only two of them occurring also in Europe.

SYNOPSIS OF THE SPECIES.

	Spores and mature lamellæ flesh-colored	1
	Spores and mature lamellæ rosy-red	9
	Spores very pale flesh-colored	10
1.	Pileus hygrophanous	8
1.	Pileus not hygrophanous	2
2.	Pileus gray or grayish-brown	5
2.	Pileus some other color	3
3.	Pileus white or whitish	4
3.	Pileus pale tan-color	*C. pascuensis.*
4.	Pileus firm, dry, pruinate	*C. prunulus.*
4.	Pileus soft, slightly viscid when moist	*C. Orcella.*
5.	Pileus large, more than 1.5 in. broad	*C. abortivus.*
5.	Pileus small, less than 1.5 in. broad	6
6.	Spores even	*C. unitinctus.*
6.	Spores angular	7
7.	Stem longer than the width of the zoneless pileus	*C. albogriseus.*
7.	Stem shorter than the width of the commonly zonate pileus	*C. micropus.*
8.	Pileus brown or grayish brown	*C. subvilis.*
8.	Pileus white or yellowish-white	*C. Woodianus.*
9.	Stem colored like the pileus	*C. erythrosporus.*
9.	Stem white, paler than the pileus	*C. conissans.*
10.	Pileus even	11
10.	Pileus rivulose	*C. Noveboracensis.*
11.	Stems cæspitose, solid	*C. cæspitosus.*
11.	Stems not cæspitose, hollow	*C. Seymourianus.*

Spores flesh-colored.

a. Spores even.

Clitopilus prunulus. *Scop.*

PLUM CLITOPILUS.

Pileus fleshy, *compact*, at first convex and regular, then repand, *dry*, *pruinate*, white or cinereous white, flesh white, unchangeable, with a pleasant farinaceous odor; lamella deeply decurrent, subdistant, flesh-colored; stem solid, naked, striate, white; spores subelliptical, pointed at each end, .0004 to .00045 in. long, .0002 to .00025 broad.

Pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 3 to 4 lines thick.

Woods. Albany, Rensselaer and Saratoga counties.

Not abundant, but edible and said to be delicious and one of the best of the esculent species.

Clitopilus Orcella, *Bull.*

Pileus fleshy, *soft*, plane or slightly depressed, often irregular, even when young, *slightly silky, somewhat viscid when moist*, white or yellowish-white, flesh white, taste and odor farinaceous; lamellæ deeply decurrent, *close*, whitish, then flesh-colored; stem short, solid, flocculose, often eccentric, thickened above, white; spores elliptical, .00035 to .0004 in. long, .0002 broad.

Generally a little smaller than the preceding species, softer and more irregular, but so closely allied that by some it is considered a mere variety of it. It is said to be edible and of a delicate flavor. It occurs in wet weather in pastures and open places. Rensselaer county.

Clitopilus pascuensis, *Pk.*

PASTURE CLITOPILUS.

Pileus fleshy, compact, centrally depressed, *glabrous, reddish or pale-alutaceous*, the cuticle of the disk cracking into minute areas; lamellæ rather narrow, close, decurrent, whitish, becoming flesh-colored; stem short equal or tapering downward, solid, glabrous, colored like the pileus; spores subellipitical, pale incarnate, .0003 to .0004 in. long, .0002 to .00025 broad.

Pileus 2 to 3 in. broad; stem 8 to 18 lines long, 4 to 6 lines thick.

Pastures. Saratoga county.

The species is related to *C. prunulus* from which it is distinct by its shorter, paler spores, its glabrous pileus rimose-areolate on the disk, and tinged with red or alutaceous and by its paler lamellæ. From *C. pseudo-orcella* it differs in its glabrous pileus with no silky luster and in its closer lamellæ. Its odor is obsolete but it has a farinaceous flavor. It is probably esculent, but has not been found in sufficient quantity to afford a test of qualities.

Clitopilus unitinctus, *Pk.*

One-colored Clitopilus.

Pileus thin, *submembranous,* flexible, convex or nearly plane, centrally depressed or umbilicate, glabrous, subshining, often concentrically rivulous, grayish or grayish-brown, flesh whitish or grayish-white, odor obsolete, taste mild ; lamellæ narrow, moderately close, *adnate or slightly decurrent,* colored like the pileus; stem slender, straight or flexuous, subtenacious, equal, slightly pruinose, grayish-brown, with a close white mycelioid tomentum at the base and white root-like fibres of mycelium penetrating the soil ; spores elliptical, .0003 in. long, .0002 broad.

Var. *albidus.* Whitish or grayish-white, not rivulose ; lamellæ broader; spores brownish flesh-color.

Pileus 6 to 16 lines broad ; stem about 1 in. long, 1 line thick.

Woods of pine or balsam. Albany and Essex counties. Autumn.

The variety is a little paler than the typical form, with lamellæ a little broader, but is probably not specifically distinct. The species is apparently closely related to *C. cicatrisatus* but differs in color. The pileus is somewhat silky-shining and is often wavy on the margin.

b. Spores angular or irregular.

1. *Pileus not hygrophanous.*

Clitopilus abortivus, *B. & C.*

Abortive Clitopilus.

Pileus fleshy, firm, convex or nearly plane, regular or irregular, dry, *clothed with a minute silky tomentum,* becoming smooth with age, gray or grayish-brown, flesh *white,* taste and odor subfarinaceous; lamellæ thin, close, slightly or deeply decurrent, at first whitish or pale-gray, then flesh-colored; stem nearly equal, solid, minutely flocculose, sometimes fibrous-striated, colored like or paler than the pileus; spores irregular, .0003 to .0004 in. long, .00025 broad.

Pileus 2 to 4 in. broad; stem 1.5 to 3 in. long, 3 to 6 lines thick.

Ground and old prostrate trunks of trees in woods and open places. Rensselaer, Lewis and Albany counties. August and September.

This species is, in our State, the most abundant one of the genus. It is commonly gregarious, but it is also scattered and cæspitose. Frequently it fails to develop properly, and then forms irregular or subglobose fleshy whitish masses similar to those sometimes formed by *Armillaria mellea.* These generally occur in company with the normal form and apparently under the same conditions of soil, moisture and temperature. They are suggestive of the name of the species. Our plant is related to *C. popinalis*, from which it is distinguished by its firmer less glabrous unspotted pileus, paler flesh and larger spores. *C. popinalis* var. *firmatus* is more closely allied by its compact texture, but its spotted pileus and umber-brown color both without and within easily distinguish it. Our species has been found to be edible, but its flavor is scarcely as agreeable as that of some other species.

Clitopilus albogriseus, *Pk.*

PALE-GRAY CLITOPILUS.

Pileus firm, convex or slightly depressed, *glabrous*, pale-gray, odor farinaceous; lamellæ moderately close, adnate or slightly decurrent, grayish, then flesh-colored; stem solid, colored like the pileus; spores angular or irregular, .0004 to .0005 in. long, .0003 broad.

Pileus 6 to 12 lines broad; stem 1.5 to 2.5 in. long, 1 to 2 lines thick

Woods. Adirondack mountains. August.

Clitopilus micropus, *Pk.*

SHORT-STEMMED CLITOPILUS.

Pileus thin, fragile, convex or centrally depressed, *umbilicate, silky*, gray, usually with one or two narrow zones on the margin, odor farinaceous; lamellæ narrow, close, adnate or slightly decurrent, gray, becoming flesh-colored; stem *short*, solid, slightly thickened at the top, pruinose, gray, with a white mycelium at the base; spores angular or irregular, .0004 in. long, .00025 broad.

Pileus 6 to 12 lines broad; stem 8 to 10 lines long, 1 line thick.

Thin woods. Essex and Rensselaer counties. Aug.

This species is closely allied to the preceding one, but may be separated from it by its short stem and silky umbilicate subzonate pileus. Both species are rare and have been observed only in wet, rainy weather.

2. *Pileus hygrophanous.*

Clitopilus subvilis, *Pk.*

WORTHLESS CLITOPILUS.

Pileus thin, centrally depressed or umbilicate, with the margin decurved, hygrophanous, *dark-brown* and striatulate on the margin when moist, grayish-brown and silky-shining when dry, taste farinaceous; lamellæ *subdistant*, adnate or slightly decurrent, whitish when young, then flesh-colored; stem slender, brittle, rather long, *stuffed or hollow*, glabrous, colored like the pileus or a little paler; spores angular, .0003 to .0004 in. long.

Pileus 8 to 15 lines broad, stem 1.5 to 3 in. long, 1 to 2 lines thick.

Damp soil in thin woods. Albany county. October.

The species is allied to *C. vilis*, from which it is separated by its silky-shining pileus subdistant lamellæ and farinaceous taste.

Clitopilus Woodianus, *Pk.*

WOODS CLITOPILUS.

Pileus thin, convex or nearly plane, umbilicate or centrally depressed, hygrophaneous; striatulate, on the margin when moist, *whitish or yellowish-white* and shining when dry, the margin often wavy or flexuous; lamellæ *close*, adnate or slightly decurrent, whitish, then flesh-colored; stem equal, flexuous, shining, *solid*, colored like the pileus; spores subglobose, angular, .00025 to .0003 in. long.

Pileus 1 to 2 in. broad; stem 2 to 3 in. long, 2 lines thick.

Ground and decayed prostrate trunks in woods. Lewis county. September.

This species is perhaps too closely allied to the preceding, but it may easily be separated by its paler color, closer lamellæ and solid stem, though this is sometimes hollow from the erosion of insects. In color it resembles *Entoloma Grayanum*, but it is a much more slender species with a different mode of attachment to the lamellæ.

Spores rosy-red.

Clitopilus erythrosporus; *Pk.*

RED-SPORED CLITOPILUS.

Pileus thin, hemispherical or strongly convex, glabrous or merely pruinose, pinkish-gray, flesh whitish tinged with pink, taste farinaceous, lamellæ narrow, crowded, arcuate, *deeply decurrent*, colored like the pileus; stem equal or slightly tapering upward, hollow, slightly pruinose at the top, *colored like the pileus;* spores elliptical, .0002 in. long, .00012 to .00016 broad.

Pileus 1 to 2 in. broad; stem 1 to 1.5 in. long, 2 to 3 lines thick.

Decayed wood and among fallen leaves in woods. Albany and Ulster counties. September and October.

The species is easily recognized by its peculiar uniform color, its narrow, crowded and generally very decurrent lamellæ and by its bright rosy-red spores. Sometimes individuals occur in which the lamellæ are less decurrent.

Clitopilus conissans, *Pk.*

Dusted Clitopilus.

Pileus thin, convex, glabrous, pale-alutaceous, often *dusted by the copious spores;* lamellæ close, *adnate,* reddish-brown; stem slender, brittle, hollow, cæspitose, *white;* spores narrowly elliptical, .0003 in. long, .00016 broad.

Pilus 1 to 1.5 in. broad; stem 1 to 2 in. long, 1 to 2 lines thick.

Base of an apple tree. Catskill mountains. September.

Remarkable for the copious bright rosy-red spores which are sometimes so thickly dusted over the lower pilei of a tuft as to conceal their real color. The species is very rare.

Spores very pale flesh-colored, merely tinted.

Clitopilus cæspitosus, *Pk.*

Tufted Clitopilus.

Pileus at first convex, firm, nearly regular, shining, white, then nearly plane, fragile, often irregular or eccentric, glabrous but with a slight silky lustre, *even,* whitish, flesh white, *taste mild;* lamellæ narrow, thin, crowded, often forked, adnate or slightly decurrent, whitish, becoming dingy or brownish-pink; stems *cæspitose,* solid, silky-fibrillose, slightly mealy at the top, white; spores .0002 in. long, .00016 broad.

Pileus 2 to 4 in. broad; stem 1.5 to 3 in. long, 2 to 4 lines thick.

Thin woods and pastures. Ulster county. Sept.

This is a large, fine species, very distinct by its cæspitose habit, white color and very pale sordid-tinted spores. But for the color of these the plant might easily be taken for a species of Clitocybe. The tufts sometimes form long rows.

Clitopilus Noveboracensis, *Pk.*

New York Clitopilus.

Pileus thin, convex, then expanded or slightly depressed, dingy white *rimose-areolate or concentrically rivulose,* sometimes obscurely zonate, odor farinaceous, *taste bitter;* lamellæ narrow, close, deeply decurrent, some of them forked, white, becoming dingy, tinged with yellow or flesh-color; stem equal, solid, colored like the pileus, the mycelium white, often forming white branching root-like fibres; spores globose .00016 to .0002 in. broad.

Var. *brevis.* Margin of the pileus, in the moist plant, pure white; lamellæ adnate or slightly decurrent; stem short.

Pileus 1 to 2 in. broad; stem 1 to 2 in. long, 1 to 3 lines thick.

Woods and pastures. Adirondack mountains, Albany and Rensselaer counties. August to October.

The plant is gregarious or cæspitose. Sometimes, especially in the variety, it grows in lines or arcs of circles. The margin is often undulated, and in the variety it is, when fresh and moist, clothed with a film of interwoven webby white fibrils which give it a peculiar appearance, and if the spore characters are neglected it might be mistaken for *Clitocybe phyllophila.* The disk is often tinged with reddish-yellow or rusty hues when moist and its rivulose character is then more distinct. A farinaceous odor is generally present, especially in the broken or bruised plant, but its taste is bitter and unpleasant. Sometimes bruises of the fresh plant manifest a tendency to assume a smoky-brown or blackish color. The base of the stem is sometimes clothed with a white mycelioid tomentum. The species is apparently closely allied to *C. concentricus*, Gill., of which the lamellæ are said to be cinereous or reddish-cinereous, and the spores of a dirty rosy hue.

Clitopilus Seymourianus, *Pk.*

SEYMOUR'S CLITOPILUS.

Pileus fleshy, thin, broadly convex or slightly depressed, even, *pruinose, whitish with a dark lilac tinge,* sometimes lobed and eccentric; lamellæ narrow, crowded, decurrent, some of them forked at the base, whitish with a pale flesh-colored tint; stem equal, silky-fibrillose, *hollow;* spores minute, globose or nearly so, .00014 to .00016 in. long.

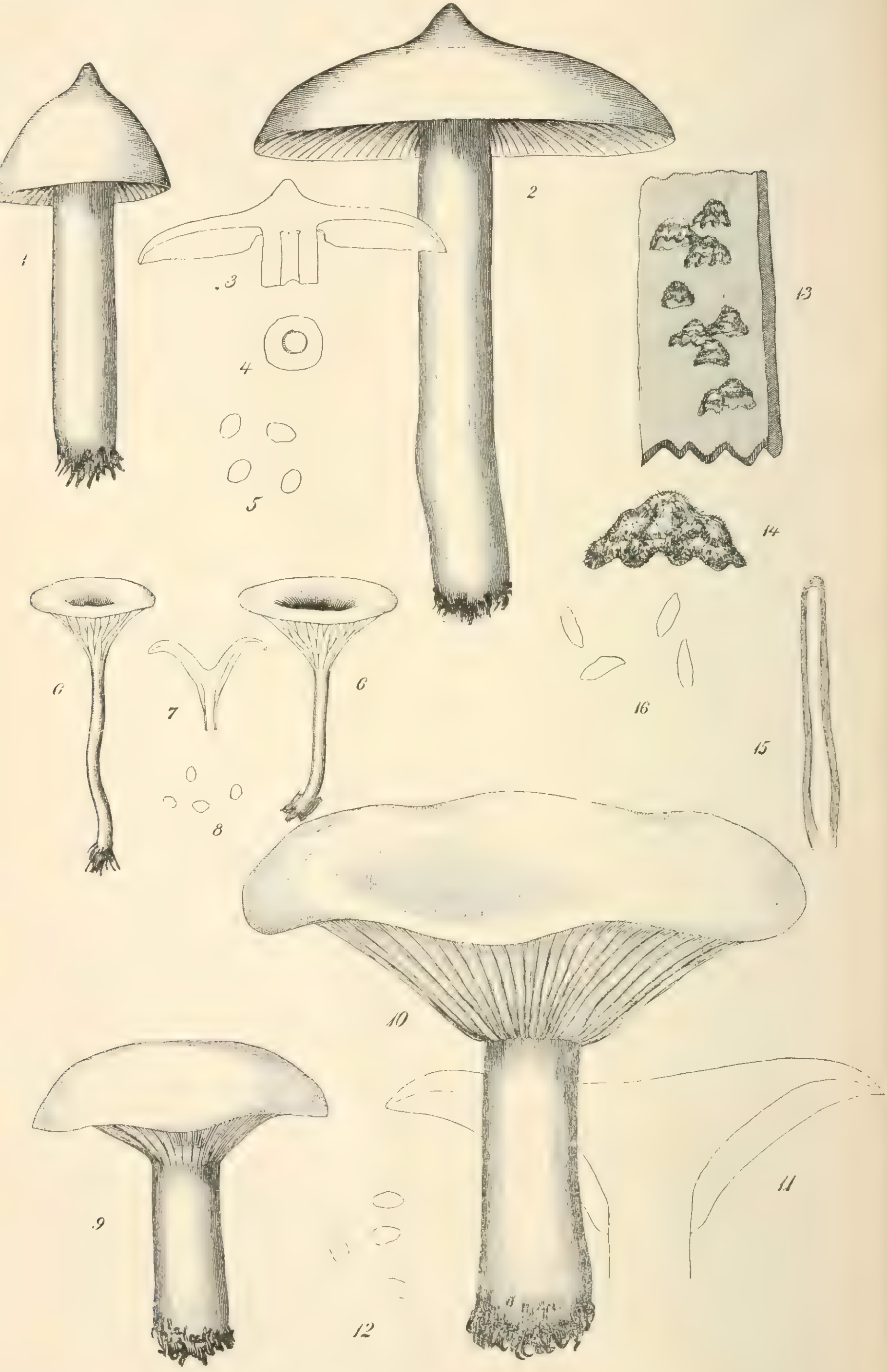
Pileus 1 to 2.5 in. broad; stem 1.5 to 2.5 in. long, 3 to 4 lines thick.

Woods. Lewis county. September.

FUNGI.

State Museum Natural History, 42

Plate 1.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EXPLANATION OF PLATE 1.

Tricholoma subacutum, *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and upper part of its stem.
Fig. 4. Transverse section of a stem.
Fig. 5. Four spores x 400.

Cantharellus rosellus, *Peck.*

Fig. 6. Two mature plants.
Fig. 7. Vertical section of a pileus and upper part of its stem.
Fig. 8. Four spores x 400.

Clitocybe media, *Peck.*

Fig. 9. An immature plant.
Fig. 10. A mature plant.
Fig. 11. Vertical section of a pileus and upper part of its stem.
Fig. 12. Four spores x 400.

Hymenochæte abnormis, *Peck.*

Fig. 13. Piece of spruce wood bearing eight plants.
Fig. 14. A plant enlarged.
Fig. 12. A seta from the hymenium x 400.
Fig. 16. Four spores x 400.

EXPLANATION OF PLATE 2.

OMBROPHILA ALBICEPS, *Peck.*

Fig. 1. Piece of wood bearing four plants.
Fig. 2. A plant enlarged.
Fig. 3. A dried plant enlarged.
Fig. 4. An ascus with its spores and a paraphysis x 400.
Fig. 5. Four spores x 400.

NAUCORIA SCIRPICOLA, *Peck.*

Fig. 6. An immature plant.
Fig. 7. A mature plant.
Fig. 8. Vertical section of a pileus and upper part of its stem.
Fig. 9. Transverse section of a stem.
Fig. 10. Four spores x 400.

GALERA RUFIPES, *Peck.*

Fig. 11. A moist plant.
Fig. 12. A dry plant.
Fig. 13. Vertical section of a pileus and upper part of its stem.
Fig. 14. Transverse section of a stem.
Fig. 15. Four spores x 400.

TRICHOLOMA SILVATICUM, *Peck.*

Fig. 16. A small umbonate plant.
Fig. 17. A larger plant without an umbo.
Fig. 18. Vertical section of a pileus and upper part of its stem.
Fig. 19. Four spores x 400.

THELEPHORA SCOPARIA, *Peck.*

Fig. 20. Three plants attached to different matrices.
Fig. 21. Four spores x 400.

PISTILLARIA ALNICOLA, *Peck.*

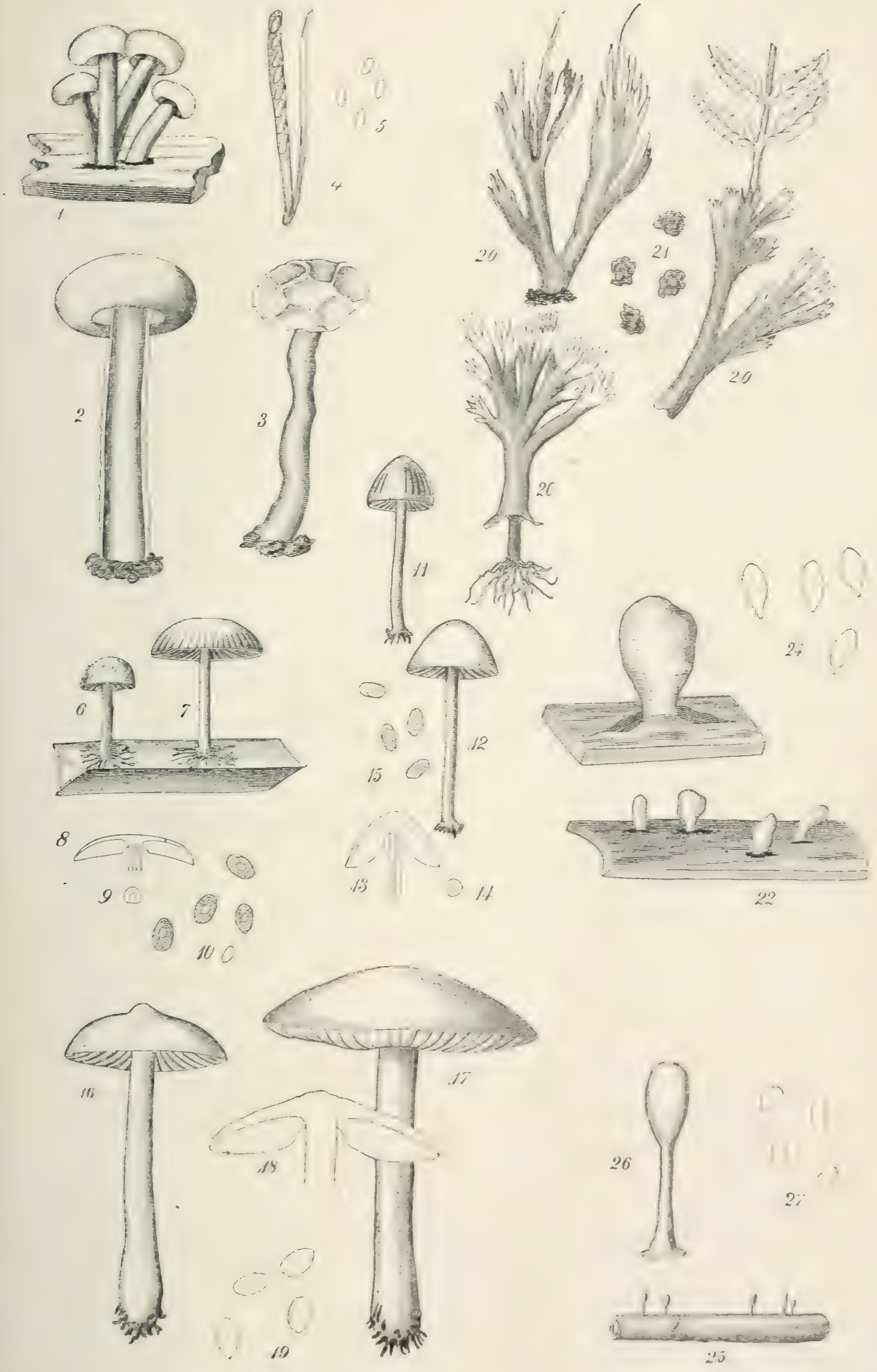
Fig. 22. Piece of bark of alder bearing four plants.
Fig. 23. A plant and its matrix enlarged.
Fig. 24. Four spores x 400.

PISTILLARIA VITICOLA, *Peck.*

Fig. 25. Fragment of grape vine bearing six plants.
Fig. 26. A plant enlarged.
Fig. 27. Four spores x 400.

FUNGI.

State Museum Natural History, 42. Plate 2.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[FROM THE 43d REPORT OF THE NEW YORK STATE MUSEUM OF NATURAL HISTORY.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

STATE OF NEW YORK.

Made to the Regents of the University, Pursuant to
Chapter 355, of the Laws of 1883.

BY CHARLES H. PECK.

ALBANY:
JAMES B. LYON, STATE PRINTER.
1890.

STATE OF NEW YORK.

No. 61.

IN SENATE,

March 21, 1890.

ANNUAL REPORT OF THE STATE BOTANIST.

Office of the State Botanist,
Albany, *March* 21, 1890.

To the Honorable the Regents of the University of the State of New York:

I have the honor to present to you my annual report for the year 1889.

Very respectfully.
CHARLES H. PECK.

REPORT OF THE BOTANIST.

To the Honorable the Regents of the University of the State of New York:

Gentlemen.— I have the honor of communicating to you the following report:

Specimens of plants for the State Herbarium have been collected by the Botanist during the past season in the counties of Albany, Broome, Clinton, Columbia, Essex, Franklin, Greene, Kings, Oneida, Rensselaer, Saratoga, Schenectady, St. Lawrence, Suffolk, Ulster and Washington.

Specimens contributed by correspondents were collected in the counties of Essex, Onondaga, Orleans, Queens, Schoharie and Tompkins.

Specimens representing 229 species of plants have been added to the Herbarium during the past year, of which 207 were collected by the Botanist and 21 were contributed. Of the former, 84 are new to the Herbarium; of the latter, 21. The number of species represented in the Herbarium has therefore been increased by 105. Among these are 37 species of fungi considered new to science and hereinafter described as new species. A list of the species of which specimens have been added to the Herbarium is marked A.

23 persons have contributed specimens. Among the contributions are many extra-limital species not included in the foregoing enumeration. A list of the contributors and of their respective contributions is marked B.

A record of species not before reported, together with locality and habitat, and descriptions of such as are deemed new to science, is marked C.

Remarks concerning species previously reported, a record of new localities of rare plants and descriptions of new varieties will be found in a subdivision marked D.

Descriptions of New York species of Armillaria and remarks concerning them will be found under E.

The unusually wet character of the season now ended has afforded an excellent opportunity to observe the influence of rainy weather in promoting the growth of fungi. The prevailing temperature has not been high and there has been an almost conspicuous absence of thunder showers, yet rain storms have been frequent and sometimes copious, and cloudy, wet weather has been of long continuance. Under such influences the abundance and destructiveness of the parasitic fungi has been remarkable.

Monilia fructigena, a fungus which attacks apples, pears, peaches and plums, even while hanging on the trees, and breaks out upon their surface in small grayish or yellowish gray tufts, has rarely, if ever, been more abundant and destructive. It is such a pest to peaches that, in regions where they are generally cultivated, it has received the common name of "peach rot." But it is no less dangerous to plums in districts where their cultivation is general, and it might with equal reason be called "plum-rot" in such places. The diseased fruit often remains on the tree during the winter and becomes the source of infection to the next crop. This danger might be greatly lessened if the affected fruit could be gathered and burned or deeply buried in fall or early spring.

A currant-leaf fungus, *Glœosporium ribis*, has also been excessively virulent. In some localities currant leaves have been so severely attacked by it that their vigor was destroyed and they fell to the ground long before the usual time. In my own garden the currant bushes were as destitute of foliage in August as they usually are in November. This fungus does not attack the fruit, but when it is abundant on the foliage, which it covers with brownish or discolored spots, it must necessarily weaken the plants and diminish the succeeding crop of currants.

Glœosporium lagenarium is a fungus generically related to the preceding species. Its attacks upon muskmelons and watermelons have, in some instances, been very severe. It not only causes spots on the fruit, thereby spoiling it, but it has also attacked the foliage, causing spots on it and finally killing it and the vines.

Glœosporium Lindemuthianum is another species which commonly attacks the pods of some varieties of wax beans, producing discolored spots on them and injuring their market value. This year it has been quite aggressive and, in some instances, attacked varieties that were formerly free from it.

Squashes also have suffered unusually from a species of mold, *Rhopalomyces Cucurbitarum*, which invades the blossoms and young fruit and induces rapid decay in the latter.

The downy mildew of the grape, *Peronospora viticola*, has been unusually virulent in its attacks and remarkably luxuriant in its development upon some varieties of the grape. Few species of the cultivated fruits and vegetables of our gardens have wholly escaped the ravages of their respective fungous parasites.

The potato-rot fungus, *Peronospora infestans*, has been active in both garden and field, and has not been at all behind other species in its destructive energy. It was my purpose to make, in my own garden, a thorough trial of the Bordeaux mixture as a preventive of this disease. But the fungus made its appearance so much earlier than usual that the leaves were considerably spotted by it before the first spraying was made and consequently some spores were perfected and scattered before any treatment was given. Notwithstanding this and the tendency of the frequent rains to wash the mixture from the foliage, the plants treated with two applications maintained a green and comparatively healthy foliage much longer than those that were not sprayed. Wishing to see the result of planting diseased tubers, a dozen hills of such were placed on one side of a small experimental plat. By the side of this row three others of equal length were planted with sound tubers. The plants from the diseased tubers grew much more feebly than those from the sound tubers, and the fungus first appeared on the lower leaves of this row. It soon appeared on the adjoining rows but the discolored spots were less in number the more remote the row was from the source of infection. All the spotted leaves were then picked from the vines to see if the progress of the disease might thereby be checked. But it immediately appeared again and then the whole plat was sprayed with the Bordeaux mixture. This gave a very decided check to the progress of the disease. 11 days later, which was July fifteenth, the spraying was repeated. The foliage at this time was in excellent condition, looking green and healthy. An absence of two weeks then intervened. In the meantime heavy rains had fallen and washed much of the mixture from the foliage, and on my return I found the fungus had renewed the attack and made such headway that it was useless to continue the experiment. But enough had been shown to indicate that if the foliage of the potato plant is kept whitened with the Bordeaux mixture it can be kept free from the fungus.

To try the effect of deep planting on the productive power of the potato, a trench about a foot deep was dug and 12 tubers planted in it about a foot apart. These were covered about four inches deep. At the same time 12 tubers were planted about four inches deep in a row by the side of the trench. As the plants in the trench grew, soil was, from time to time, thrown into the trench till it was filled. In all other respects the two experiment rows received the same treatment. The plants in the trench were more productive than those planted in the ordinary way, yielding 198 tubers weighing 19½ pounds; the others yielding 155 tubers weighing 14 pounds. But the trench system proved superior not only in its greater production, but also in its better protection. Among the tubers dug from the 12 hills in the trench, four were found affected by rot, and these all occurred in two hills. But among those dug from the 12 hills planted in the usual way, 37 affected ones were found, nearly every hill furnishing some. Thus it is evident that deep planting is a protection against rot. The spores produced by the fungus on the leaves are the cause of the mischief in the tuber. They fall to the ground and are washed down through the soil to the tubers by the rain. They do not so easily reach the tubers when they are covered by a thick layer of earth as when they lie near the surface. It also follows that a very compact soil affords greater protection than a loose porous one, though it is not as favorable to production. In a part of the garden the soil was of such a character that the heavy rains had made it very firm and compact. It was scarcely possible to dig the tubers with the implements ordinarily used for this purpose because of the hardness of the soil. Although the vines here had been badly affected and speedily killed by the fungus no rotten tubers were found. The spores, which must have been very plentiful here, were prevented from reaching the tubers by the hard and compact condition of the soil over them. These two examples indicate the way in which the germs of the disease chiefly reach the tubers. Any practical method of preventing them from being washed down through the soil to the tubers will solve the problem of saving them from this infection. But it is far better to strive to prevent the infection of the foliage, for in an early attack, like that of the past season, the foliage might be destroyed before the tubers were mature. In such a case the crop would be inferior in quantity and quality even if the tubers should remain unaffected. Thorough spraying with the Bordeaux mixture promises to do this if commenced before the fungus makes its appearance and repeated as often as it is washed off by rains.

Thinking that the great windfall in the Adirondack wilderness, where, about 45 years ago, a tornado swept through the forest and prostrated the trees, would be a good locality in which to study the action of wood-destroying fungi and obtain specimens of them, that place was visited. But two agencies had intervened to prevent the realization of my expectations. Forest fires had run through the windfall and consumed all the smaller material and so much time had elapsed since the death of the trees that what the fire had left had passed beyond its period of usefulness as a habitat for wood-loving fungi. Young trees, chiefly poplar, have grown all along in the track of the wind-storm. This wood is now so useful in furnishing material for pulp that the strip of land devastated by the storm is by no means destitute of value.

It was at this time that a peculiar appearance of the oat-fields in St. Lawrence county attracted my attention. The foliage of the plants presented a singular admixture of green, dead-brown and reddish hues, strongly suggestive of that of a "rust-struck" field. But upon examination no rust fungus could be found. Many of the leaves were either wholly or in their upper-half dead and discolored. On these dead parts were a few scattered tufts of a very minute fungus somewhat resembling the common *Cladosporium herbarum*. No other fungus was found upon them and no description has been found corresponding to the characters of this one. It has, therefore, been figured and described in this report as a new species of Fusicladium, to which genus it appears to belong. It is not improbable that it inhabits the leaves of some of our northern native grasses and has escaped from them to the oat-fields. It is so minute and so obscure in its character that it has probably been overlooked till now, but having escaped to the oat-fields, and having been stimulated by the favoring character of the season to an unusually abundant development, its existence could no longer be concealed. Its effect on the foliage is so destructive that it must greatly diminish the yield of this grain in places where it abounds, for no plant can do its best work with half its foliage dead and discolored. It is probable that in an ordinarily dry season its attacks will be much less severe.

Not only have the parasitic fungi manifested great activity, but also the saprophytic, as has been indicated by the abundant and vigorous growth of those species that are found upon stumps, dead branches and prostrate trunks in and about our woodlands. A letter to me from P. H. Dudley, C. E., who is making a study of this subject, with especial reference to its practical and economic aspect, has such a direct bearing upon this subject and records observations of such practical value, that I have, with his permission, appended a copy of it to this report. It is marked F.

Very respectfully submitted.

CHAS. H. PECK.

ALBANY, *December* 10, 1889.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Thlaspi arvense *L.*
Hesperis matronalis *L.*
Prunus avium *L.*
Trapa natans *L.*
Lacnanthes tinctoria *Ell.*
Setaria Italica *Kunth.*
Cynodon dactylon *Pers.*
Amanita nitida *Fr.*
Tricholoma sejunctum *Sow.*
T. grave *Pk.*
Clitocybe multiceps *Pk.*
C. catinus *Fr.*
Clitopilus stilbocephalus *B. & Br.*
Coprinus Brassicæ *Pk.*
Cortinarius glutinosus *Pk.*
C. annulatus *Pk.*
C. luteus *Pk.*
C. paludosus *Pk.*
Lactarius subinsulsus *Pk.*
L. mutabilis *Pk.*
Russula brevipes *Pk.*
R. pectinata *Fr.*
Marasmius fœtidus *Fr.*
M. albiceps *Pk.*
Polyporous cæsarius *Fr.*
P. hispidus *Fr.*
Poria aurea *Pk.*
P. latemarginata *D. & M.*
Hydnum stratosum *Berk.*
H. pallidum *C. & E.*
H. acutum *Pers.*
Irpex rimosus *Pk.*
Corticium mutatum *Pk.*
C. Berkeleyi *Cke.*
C. subaurantiacum *Pk.*
C. basale *Pk.*
Peniophora unicolor *Pk.*
Clavaria similis *Pk.*
Ditiola conformis *Karst.*
Mutinus bovinus *Morg.*
Geaster fimbriatus *Fr.*
Scleroderma Geaster *Fr.*
Enteridium Rozeanum *Wing.*
Cribraria violacea *Rex.*
Comatricha longa *Pk.*
C. subcæspitosa *Pk.*
Plasmodiophora Brassicæ *Wor.*
Phyllosticta bicolor *Pk.*
P. Prini *Pk.*
P. Silenes *Pk.*
P. Caricis *Sacc.*
Phoma allantella *Pk.*
P. Candollei *Sacc.*
Haplosporella Ailanthi *E. & E.*
Diplodia Æsculi *Lev.*
Leptostroma Polygonati *Lasch.*
Septoria Helianthi *E. & K.*
S. thecicola *B. & Br.*
Cytospora orthospora *B. & C.*
Glœosporium leptospermum *Pk.*
Melanconium magnum *Berk.*
Puccinia obscura *Schrœt.*
P. Eleocharidis *Arthur.*
P. mammillata *Schrœt.*
P. Malvacearum *Mont.*
Ustilago Austro-Americana *Speg.*
Doassansia Alismatis *Corn.*
Plasmopara Viburni *Pk.*
Sporotrichum cohærens *Schw.*
S. cinereum *Pk.*
Coniosporium Fairmani *Sacc.*
C. culmigenum *Berk.*
C. Polytrichi *Pk.*
Torula convoluta *Harz.*
Echinobotryum atrum *Cd.*
Stachybotrys elongata *Pk.*
Zygodesmus muricatus *E. & E.*
Dematium parasiticum *Pk.*
Fusicladium destruens *Pk.*
Cercospora Apocyni *E. & K.*
C. granuliformis *E. & H.*
Sporodesmium antiquum *Cd.*
Stilbum Spraguei *B. & C.*
Isaria aranearum *Schw.*
Tubercularia carpogena *Pk.*
Fusarium Sclerodermatis *Pk.*
Epicoccum purpurascens *Ehren.*
Underwoodia columnaris *Pk.*
Lachnella cerina *Phil.*
Tapesia Rosæ *Phil.*
Helotium mycetophilum *Pk.*
Cenangium rubiginosum *Cke.*

Coronophora gregaria *Fckl.*
Hæmatomyces faginea *Pk.*
Barya parasitica *Fckl.*
Hypoxylon effusum *Nits.*
Eutypa flavovirescens *Tul.*
Eutypella longirostris *Pk.*
Anthostoma microsporum *Karst.*
Didymosporium effusum *Schw.*
Cryptosporella hypodermia *Sacc.*
Leptosphæria dumetorum *Niessl.*
Herpotrichia rhodomphalia *Sacc.*
Lophiotrema auctum *Sacc.*

Not new to the Herbarium.

Ranunculus bulbosus *L.*
R. repens *L.*
Brasenia peltata *Pursh.*
Capsella Bursa-pastoris *Mœnch.*
Cardamine hirsuta *L.*
Helianthemum Canadense *Mx.*
Lechea major *Mx.*
L. thymifolia *Pursh.*
Linum Virginianum *L.*
L. usitatissimum *L.*
Rhus Toxicodendron *L.*
Trifolium hybridum *L.*
Desmodium rotundifolium *DC.*
Lupinus perennis *L.*
Rubus neglectus *Pk.*
Rosa Carolina *L.*
Amelanchier Canadensis *T. & G.*
Lythrum alatum *Pursh.*
Carum Carui *L.*
Cicuta bulbifera *L.*
Cryptotænia Canadensis *DC.*
Levisticum officinale *Koch.*
Sium cicutæfolium *Gmel.*
Aster diffusus *Ait.*
A. multiflorus *Ait.*
A. cordifolius *L.*
A. ericoides *L.*
A. Novi Belgii *L.*
A. puniceus *L.*
A. undulatus *L.*
A. vimineus *Lam.*
Solidago puberula *Nutt.*
S. Elliottii *T. & G.*
S. speciosa *Nutt.*
S. nemoralis *Ait.*
Achillea millefolium *L.*
Artemisia caudata *Mx.*
Sonchus arvensis *L.*
Rudbeckia laciniata *L.*
R. triloba *L.*
Lobelia Kalmii *L.*
L. inflata *L,*
Plantago lanceolata *L.*
Polygonum dumetorum *L.*
Celtis occidentalis *L.*
Physalis viscosa *L,*
Carya amara *Nutt.*
Juglans cinerea *L.*
Asparagus officinalis *L.*
Potamogeton zosterifolius *Shum.*
Juncus acuminatus *Mx.*
J. Canadensis *J. Gay.*
J. effusus *L.*
J. filiformis *L.*
J. scirpoides *Lam.*
Carex blanda *Dew.*
C. rosea *Schk.*
Bromus ciliatus *L.*
B. racemosus *L.*
Andropogon macrourus *Mx.*
Botrychium matricariæfolium *A.Br.*
Amanita solitaria *Bull.*
Armillaria mellea *Vahl.*
A. nardosmia *Ellis.*
Tricholoma variegatum *Scop.*
Clitocybe laccata *Scop.*
Collybia radicata *Relh.*
C. hariolorum *DC.*
C. tuberosa *Bull.*
Mycena corticola *Schum.*
Omphalia chrysophylla *Fr.*
O. striipilea *Fr.*
Pleurotus striatulus *Fr.*
Clitopilus Noveboracensis *Pk.*
Inocybe rimosa *Bull.*
Galera hypnorum *Batsch.*
Coprinus fimetarius *Fr.*
C. micaceus *Fr.*
C. plicatilis *Fr.*
Hygrophorus ceraceus *Fr.*
Lactarius fuliginosus *Fr.*
Russula nigricans *Fr.*
R. sordida *Pk.*
R. heterophylla *Fr.*
R. crustosa *Pk.*
R. fragilis *Fr.*
Marasmius erythropus *Fr.*
Lentinus lepideus *Fr.*

Lentinus strigosus *Schw.*
L. umbilicatus *Pk.*
Strobilomyces strobilaceus *Berk.*
Polyporus griseus *Pk.*
P. perennis *Fr.*
P. circinatus *Fr.*
P. chioneus *Fr.*
P. connatus *Fr.*
P. glomeratus *Pk.*
P. balsameus *Pk.*
P. versicolor *Fr.*
Poria vaporaria *Fr.*
P. mutans *Pk.*
P. attenuata *Pk.*
Dædalea confragosa *Pers.*
Trametes sepium *Berk.*
Merulius lacrymans *Fr.*
Solenia fasciculata *Pers.*
Hydnum repandum *L.*
H. aurantiacum *A. & S.*
H. subfuscum *Pk.*
Irpex paradoxus *Fr.*
Stereum sanguinolentum *Fr.*
S. rugosum *Fr.*
S. ochraceoflavum *Schw.*
S. acerinum *Pers.*
Hymenochæte tabacina *Lev.*
Clavaria botrytes *Pers.*
Tremella foliacea *Pers.*
Exidia glandulosa *Fr.*
Lycoperdon constellatum *Fr.*
Scleroderma vulgare *Fr.*
S. Bovista *Fr.*
Stemonitis Morgani *Pk.*
Siphoptychium Casparyi *Rost.*
Ustilago segetum *Dittm.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. D. B. Fitch, Norwich, N. Y.

Viola sagittata *Ait.*
Flœrkia proserpinacoides *Willd.*
Trillium erectum *L.*
Erythronium albidum *Nutt.*

L. F. Ward, Washington, D. C.

Hieracium præaltum *Vill.*

A. G. Grinnan, M. D., Madison Mills, Va.

Calostoma Berkeleyi *Massee.*

Prof. L. M. Underwood, Syracuse, N. Y.

Clitopilus stilbocephalus *B. & Br.*
Hydnum stratosum *Berk.*
Peniophora unicolor *Pk.*
Underwoodia columnaris *Pk.*
Eutypella longirostris *Pk.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Diplodia Æsculi *Lev.*
Zygodesmus muricatus *E. & E.*
Tapesia Rosæ *Phil.*
Haplosporella Ailanthi *E. & E.*
Lophiotrema auctum *Sacc.*
Puccinia Malvacearum *Mont.*
Eutypa flavovirescens *Tul.*
Diatrype albopruinata *Schw.*
Leptosphaeria dumetorum *Niessl.*
Coniosporium Fairmani *Sacc.*
C. culmigenum *Berk.*
Æcidium Lysimachiæ *Wallr.*

F. E. Emery, Geneva, N. Y.

Puccinia Malvacearum *Mont.*

Prof. J. A. Lintner, Albany, N. Y.

Uncinula macrospora *Pk.*
Fuligo varians *Sommerf.*

W. A. Setchell, Cambridge, Mass.

Doassansia Alismatis *Corn.*
D. Sagittariæ *Schrœt.*
D. occulta *Corn.*
Tolysporium bullatum *Schrœt.*
Entyloma Compositarum *Farl.*

Prof. J. C. Smock, Albany, N. Y.

Placodium elegans *Lk.*
Theloschistes concolor *Dicks.*

J. Dearness, London, Canada.

Teucrium botrytis *L.*
Botrytis geniculata *Cd.*
Libertella acerina *West.*
L. faginea *Desm.*

W. T. Swingle, Manhattan, Kansas.

Ustilago provincialis *K. & S.*

Prof. B. D. Halsted, New Brunswick, N. J.

Synchytrium Vaccinii *Thom.*
Peronospora Cubensis *B. & C.*

Harold Wingate, Philadelphia, Pa.

Orcadella operculata *Wing.*
Comatricha longa *Pk.*

Geo. A. Rex, M.D., Philadelphia, Pa.

Siphoptychium Casparyi *Rost.*
Physarum lividum *Rost.*
Stemonitis dictyospora *Rost.*
Comatricha longa *Pk.*
Cribraria violacea *Rex.*

Prof. H. J. Weber, Lincoln, Neb.

Puccinia vexans *Farl.*

Wm. Herbst, M. D., Trexlertown, Pa.

Pholiota æruginosa *Pk.*
Clitocybe multiceps *Pk.*
Polyporus lucidus *Leys.*

Rev. J. L. Zabriskie, Flatbush, N. Y.

Puccinia mammillata *Schrœt.*
Ustilago Austro-Americana *Speg.*
Sporodesmium antiquum *Cd.*
Echinobotryum atrum *Cd.*
Hypoxylon effusum *Nits.*
Comatricha longa *Pk.*

P. H. Dudley, New York, N. Y.

Merulius lacrymans *Fr.*
Polyporus lucidus *Leys.*
Polyporus hispidus *Fr.*

S. M. Tracy, Agricultural College, Miss.

Phragmidium Fragariastri *Schrœt.*
P. subcorticium *Wint.*
Puccinia caulicola *T. & G.*
P. Sporoboli *Arth.*
P. Galiorum *Lk.*
P. Hieracii *Mart.*
P. Andropogonis *Schw.*
P. Helianthi *Schw.*
P. Silphii *Schw.*
P. Malvastri *Pk.*
P. lateripes *B. & R.*
P. heterospora *B. & C.*
P. Violæ *DC.*
Uromyces Spermacoces *Wint.*
U. Sparganii *C. & P.*
U. Terebinthi *Wint.*
Uromyces Trifolii *DC.*
U. Œnotheræ *Burr.*
U. Lespedezæ *Pk.*
U. Hyperici *Curt.*
U. appendiculatus *Lev.*
U. Euphorbiæ *C. & P.*
Ustilago sphærogena *Burr.*
Uredo Artemisiæ *Rab.*
Coleosporium Rubi *E. & M.*
Melampsora salicina *Lev.*
Rœstelia aurantiaca *Pk.*
Æcidium Clematidis *DC.*
Æ. Psoraleæ *Pk.*
Æ. Sii *Fckl.*
Peridermium orientale *Cke.*
Synchytrium fulgens *Schrœt.*

Cystopus cubicus *Lev.*
Peronospora Halstedii *Farl.*
Microstroma leucosporum *Mont.*
Cylindrosporium Heraclei *E. & E.*
Cercospora Diospyri *Thum.*
C. sordida *Sacc.*
C. clavata *Ger.*
C. Heliotropii *E. & E.*
Cerebella Andropogonis *Ces.*
Piggotia Fraxini *B. & C.*
Sphæropsis Menispermi *Pk.*
Sphaerotheca Castagnei *Lev.*
Uncinula macrospora *Pk.*
Erysiphe graminis *DC.*
Capnodium puccinioides *E. & E.*
Phleospora Ulmi *Wallr.*
Phyllachora Ulmi *Fckl.*
Hypocrea Hypoxylon *Schw.*

F. W. Anderson, Great Falls, Mont.

Phragmidium Potentillæ *Wint.*
P. subcorticium *Wint.*
Puccinia Saxifragæ *Schlect.*
P. Asteris *Duby.*
P. Tanaceti *DC.*
P. Malvastri *Pk.*
P. Troximontis *Pk.*
P. intermixta *Pk.*
P. variolaris *Hark.*
P. Polygoni-amphibii *Pers.*
P. hysteriiformis *Pk.*
P. Menthæ *Pers.*
P. Caricis *Reb.*
P. Giliæ *Hark.*
P. Rubigo-vera *DC.*
P. Phragmitis *Schum.*
P. graminis *Pers.*
Uromyces Eriogoni *E. & H.*
U. Junci *Schw.*
U. Trifolii *DC.*
U. Spragueæ *Hark.*
Ustilago Caricis *Fckl.*
U. Montaniensis *E. & H.*
Melampsora Lini *Tul.*
M. populina *Lev.*
M. salicina *Lev.*
Uredo Oxytropidis *Pk.*
Coleosporium Sonchi-arvensis *Lev.*
Cronartium Asclepiadeum *Kze.*
Æcidium gaurinum *Pk.*
Æ. monoicum *Pk.*
Æ. Clematidis *DC.*
Æ. Chrysopsidis *E. & A.*
Æ. Ligustici *E. & E.*
Æ. Asteratum *Schw.*
Sporodesmium tabacinum *E. & E.*
Coniothyrium concentricum *Desm.*
Cladosporium Typharum *Desm.*
Helminthosporium subcuticulare *E. & E.*
Ramularia lactea *Sacc.*
Didymaria Clematidis *C. & H.*
Cystopus Bliti *Biv.*
C. candidus *Lev.*
C. cubicus *Str.*
Phyllactinia suffulta *Reb.*
Sphærotheca Castagnei *Lev.*
Uncinula adunca *Lev.*
Erysiphe graminis *DC.*
E. sepulta *E. & E.*
E. communis *Wallr.*
E. Cichoracearum *DC.*
Nectria Ribis *Rab.*
Rhytisma salicinum *Fr.*
Leptosphaeria Typhæ *Karst.*

Prof. W. R. Dudley, Ithaca, N. Y.

Acer sacch. var. nigrum Gr.
Ulmus racemosa *Thomas.*

E. J. Forster, M. D., Boston, Mass.

Lepiota farinosa Pk.

Mrs. P. H. Dudley, New York, N. Y.

Fruit of passion flower, Passiflora edulis. An alga from the hot springs of Arkansas. Collected by Mrs. L. E. Holden.

(C.)

PLANTS NOT BEFORE REPORTED.

Hesperis matronalis, *L.*

Roadside, near Feurabush, Albany county. May. This plant is sometimes cultivated for ornament and escapes from cultivation and becomes naturalized in some places. Buffalo. *David F. Day.*

Prunus avium, *L.*

Ravines and hillsides. Near Catskill. May. Also reported by Professor Dudley as frequent about Ithaca, and especially abundant on both shores of Cayuga lake. An introduced plant which has escaped from cultivation.

Trapa natans, *L.*

This curious aquatic has been introduced, but is well established in Sander's lake, near Schenectady.

Aster vimineus, *Lam.*

This species is not rare in moist, sandy soil in the eastern part of Long Island. It is variable in aspect, the branches being either horizontal or somewhat ascending, and having the flowers either crowded or racemous.

Lacnanthes tinctoria, *Ell.*

Near Manor, Suffolk county. August. This plant is named in the list of those mentioned by Dr. Torrey in the Flora of New York, Vol. II, p. 522, as likely to occur on Long Island. Its occurrence in this place has verified his prediction.

Cynodon dactylon, *Pers.*

Vacant lots in Long Island city. September. This is considered a valuable grass in some of the southern States, but it is very persistent and eradicated with some difficulty. As it prefers a warmer climate it will probably not prove troublesome on Long Island.

Amanita nitida, *Fr.*

Menands, Albany county. Our plant is more slender than the typical form and has smaller, but more numerous, warts, but in other respects it exhibits the characters of this species.

Tricholoma sejunctum, *Sow.*

Mixed woods. Manor and Quogue. September. This species is not uncommon in sandy soil on Long Island, though in Europe it occurs chiefly in gravelly soil. With us it varies considerably in the color of the pileus, which may be either white or pale yellow, tinged with green or brown. It is often irregular or deformed and frequently destitute of an umbo. The fibrils are either brown or blackish. The bitter taste is sometimes absent.

Tricholoma grave, *n. sp.*

[Plate 1. Figs. 5 to 8.]

Pileus at first hemispherical, then broadly convex, compact, glabrous, grayish-tawny and somewhat spotted when moist, paler when dry, the margin paler, involute, often irregular, clothed with a minute appressed grayish-white tomentum or silkiness, flesh grayish-white; lamellæ subdistant, rounded behind or sinuate, adnexed, at first whitish, then pale ochraceous-tawny; stem stout, compact, solid, subsquamulose or furfuraceous, abruptly attenuated at the base, penetrating the soil deeply, grayish-white; spores broadly elliptical, .0003 in. long, .0002 broad.

Pileus 5 to 8 in. broad; stem 3 to 4 in. long, 1 to 1.5 in. thick.

Mixed woods of pine and oak. Manor. September.

This species is remarkable for its great size and weight. It is apparently allied to *Tricholoma colossus*, from which it is separated by the absence of any viscidity of the pileus, the radicating character of the base of the stem and by the flesh not assuming a reddish color. By its moist pileus it appears to belong to the Spongiosi rather than to the Limacini among which *T. colossus* is placed.

Clitocybe multiceps, *n. sp.*

Pileus fleshy, thin except on the disk, firm, convex, slightly moist in wet weather, whitish, grayish or yellowish-gray, flesh white, taste mild; lamellæ close, adnate or slightly decurrent, whitish; stems densely cæspitose, equal or slightly thickened at the base, solid or stuffed, firm, elastic, slightly pruinose at the apex, whitish; spores globose, .0002 to .0003 in. broad.

Pileus 1 to 3 in. broad; stem, 2 to 4 in. long, 3 to 6 lines thick.

Open places, grassy ground, etc. Albany and Sandlake. June and October. This species forms dense tufts often composed of many individuals. In this respect it is related to such species as *Clitocybe tumulosa*, *C. aggregata* and *C. illudens*. From the crowding together of many individuals the pileus is often irregular. Sometimes the disk is brownish and occasionally slightly silky. The lamellæ are sometimes slightly sinuate, thus indicating a relationship to the species of Tricholoma. The taste, though mild, is somewhat oily and unpleasant. The plants appear in wet, rainy weather, either early in the season or in autumn. Specimens have been sent to me from Massachusetts by R. K. Macadam and Professor Farlow, and from Pennsylvania by Dr. W. Herbst.

Clitocybe catinus, *Fr.*

Ray Brook, Adirondack mountains. August. The pileus is at first white, but in wet whether it becomes pallid or discolored with age. The plants were found growing among pieces of bark of arbor vitæ lying on the ground.

Clitopilus stilbocephalus, *B. & Br.*

Syracuse. October. *Prof. L. M. Underwood.* The specimens apparently belong to the variety represented in Cooke's Illustrations, plate 599.

Coprinus Brassicæ, *n. sp.*

[Plate 2. Figs. 9 to 14.]

Pileus membranous, at first ovate or conical, then broadly convex, squamulose, finely striate to the disk, white becoming grayish-brown, the margin generally splitting and becoming recurved; lamellæ narrow, crowded, reaching the stem, brown with a slight ferruginous tint; stem slender, glabrous, hollow, slightly thickened at the base, white; spores elliptical, brown, .0003 in. long, .0002 broad.

Pileus 4 to 5 lines broad; stem 8 to 10 lines long.

Decaying stems of cabbage, *Brassica oleracea.* Menands. August.

The species is easily known by its squamulose pileus and its brown lamellæ and spores. It is related by these to such species as *C. phæosporus, C. Friesii and C. tigrinellus.*

Cortinarius (Phlegmacium) glutinosus, *n. sp.*

Pileus convex, glutinous, brownish-ochraceous, the margin narrowly involute, flesh yellowish; lamellæ adnexed, olivaceous; stem solid, thickened at the base, scarcely bulbous, whitish or pallid; spores subglobose or broadly elliptical, .0003 in. long, .00025 to .0003 broad.

Pileus 1 to 3 in. broad; stem 1.5 to 3 in. long, 3 to 5 lines thick.

Mossy ground under hobble bushes, *Viburnum lantanoides.* Sevey. Adirondack mountains. July.

The dull ochraceous pileus, olivaceous lamellæ and pallid stem are the prominent features of the species. The margin of the pileus is sometimes rimose. In drying the color changes to a chestnut hue.

Cortinarius (Inoloma) annulatus, *n. sp.*

[Plate 2. Figs. 1 to 4.]

Pileus broadly convex, dry, villose-squamulose, yellow, flesh yellowish; lamellæ rather broad, subdistant, adnexed, yellow; stem solid, bulbous, somewhat peronate by the yellow fibrillose annular-terminated veil; spores broadly elliptical or subglobose, .0003 in. long.

Pileus 1 to 3 in. long; stem 1.5 to 3 in. long, 3 to 6 lines thick.

Thin woods. Whitehall. August.

The whole plant is yellow inclining to ochraceous. It has the odor of radishes. The squamules of the pileus are pointed and erect on the disk, and often darker colored there. The species is allied to *C. tophaceus* and *C. callisteus*, from which it is separated by its persistently annulate stem and more yellow color.

Cortinarius (Dermocybe) luteus, *n. sp.*

Pileus conical or convex, unpolished, yellow, often darker on the disk, flesh yellow; lamellæ adnexed, yellow; stem equal, long, solid, silky fibrillose, yellow; spores subglobose or broadly elliptical, .0003 in. long, nearly as broad.

Pileus 1 to 2 in. broad; stem 2 to 4 in. long, 6 lines thick.

Mossy ground in woods. Sevey. July.

Closely related to *C. cinnamomeus*, but differing in its stouter stem and nearly uniform yellow color.

Cortinarius (Telamonia) paludosus, *n. sp.*

Pileus conical or convex, ferruginous when moist, buff-yellow or pale ochraceous when dry, flesh yellowish; lamellæ broad, subdistant, adnate, saffron-yellow; stem long, equal, flexuous, solid, peronate and subannulate by the fibrillose yellow veil; spores .0003 to .00035 in. long, .0002 broad.

Pileus 1 to 1.5 in. broad; stem 2 to 3 in. long, about 2 lines thick.

Mossy ground in swamps. Rainbow, Franklin county. August.

Lactarius subinsulsus, *n. sp.*

Pileus firm, convex or nearly plane, umbilicate, viscid, azonate, glabrous, whitish or pallid, the margin at first slightly tomentose, soon naked, milk white, tardily acrid; lamellæ narrow, crowded, adnate or decurrent, whitish; stem short, hollow, whitish, not spotted; spores subglobose, .0003 to .00035 in. long, .0003 broad.

Pileus 2 to 4 in. broad; stem 1 to 1.5 in. long, 6 to 8 lines thick.

Pine groves. Rainbow. August.

The species is allied to *L. insulsus*, from which it is distinct by its zoneless pileus, tomentose young margin and tardily acrid taste. The stem is without spots and obscurely rugulose-reticulated, as in some species of Russula. The tomentose young margin puts the species among the Tricholomoidei near *L. pubescens*.

Lactarius mutabilis, *n. sp.*

[Plate 1. Figs. 1 to 4.]

Pileus thin, convex or nearly plane, zonate when moist, reddish-brown, the disk and zones darker, zoneless when dry, flesh colored like the pileus, milk sparse, white, taste mild; lamellæ narrow, close, adnate, whitish, with a yellowish or cream-colored tint when old; stem equal or tapering upward, stuffed or spongy within, glabrous, colored like the pileus; spores subglobose, rough, .0003 in. broad.

Pileus 2 to 4 in. broad; stem 1 to 2 in. long, 3 to 5 lines thick.

Low, damp places. Selkirk and Yaphank. June and September.

The species is allied to *L. subdulcis*, from which the larger size and zonate pileus separate it. The zones disappear in the dry plant, and this change in the marking of the pileus suggests the specific name. They appear to be formed by concentric series of more or less confluent spots and are suggestive of such species as *L. deliciosus* and *L. subpurpureus.*

Russula brevipes, *n. sp.*

[Plate 2. Figs. 5 to 8.]

Pileus at first convex and umbilicate, then infundibuliform, dry, glabrous or slightly villose on the margin, white, sometimes varied with reddish-brown stains, flesh whitish, taste mild, slowly becoming slightly acrid; lamellæ thin, close, adnate or slightly rounded behind, white; stem very short, solid, white; spores globose, verruculose, .0004 to .0005 in. in diameter.

Pileus 3 to 5 in. broad; stem 6 to 10 lines long, 6 to 10 lines thick.

Sandy soil in pine woods. Quogue. September.

This species is related to *Russula delica*, but is easily distinguished by its short stem and crowded lamellæ. The pileus also is not shining and the taste is tardily somewhat acrid. From *Lactarius exsuccus* it is separated by the character of the lamellæ and the very short stem which is about as broad as it is long. The spores also are larger than in that species. The lamellæ in the young plant are sometimes studded with drops of water. They are not clearly decurrent. Some of them are forked at the base. The pileus is but slightly raised above the surface of the ground and is generally soiled by adhering dirt and often marked by rusty or fuscous stains. The plants grew in old roads in the woods where the soil had been trodden and compacted.

Russula pectinata, *Fr.*

Grassy or mossy ground in thin woods or groves. Menands and Cemetery, Albany county. July.

Marasmius fœtidus, *Fr.*

On fallen twigs, leaves, etc. Manor. September. In our plant the pileus is rufescent. The stem also is rufescent above, brown below. The species is easily known by its strong odor.

Marasmius albiceps, *n. sp.*

[Plate 2. Figs. 15 to 18.]

Pileus membranous, either convex or campanulate, glabrous, white; lamellæ broad, distant, adnate or arcuate-decurrent, white; stem corneous, setiform, glabrous, black, paler at the apex, attached to the matrix by radiating brown hairs or fibres; spores obovate or subelliptical, .00025 to 0003 in. long, about half as broad, usually containing a shining nucleus.

Pileus about 2 lines broad; stem 8 to 15 lines long.

Among fallen leaves in mixed woods. Manor. September. In shape the pileus often approaches that of *Omphalia fibula.* In the larger specimens the lamellæ are strongly decurrent as in that species.

Polyporus cæsarius, *Fr.*

The specimens which I have referred to this species have a striking resemblance to faded specimens of *Polyporus sulphureus*, but in addition to the paler pileus the pores are white and more unequal. The spores, also, are smaller than those of *P. sulphureus*, though I can not tell if they agree with the spores of the European *P. cæsarius*, for I have been able to find no description which gives their dimensions. Our specimens were found at the base of an oak stump, near Manor. September.

Polyporus hispidus, *Fr.*

Oak trunk. Quogue. September. But a single, rather old specimen was found. It is evidently a rare species with us, though said to be more plentiful farther south.

Poria late-marginata, *D. & M.*

Prostrate trunk of wild red cherry, *Prunus Pennsylvanica.* South Ballston.

Poria aurea, *n. sp.*

Effused, forming patches several inches in extent, 2 to 3 lines thick, separable from the matrix, golden yellow; subiculum thin, sub-gelatinous, the young margin byssoid or fimbriate, greenish-yellow, soon disappearing; pores small, subrotund, elongated, the dissepiments thin, rather soft; spores minute, subelliptical, .00016 to .0002 in. long, .00008 to .00012 broad.

Decaying wood of maple, *Acer saccharinum*. Sevey. July.

Apparently closely related to *Poria xantha*, but separable from the matrix and remarkable for its somewhat gelatinous subiculum. It is an attractive species.

Hydnum stratosum, *Berk.*

Lower side of an old log. Syracuse. *Underwood.*

This is a very singular species. The subiculum appears as if formed of a coarse brown tow-like tomentum, while the aculei appear in two or three strata one above another. They are connected at the base by slender branches or processes similar to themselves in color and texture.

Hydnum pallidum, *C. & E.*

Dead branches of oak, *Quercus alba*. Manor. September. At first small suborbicular patches appear with distant aculei, but with age these patches become confluent and the aculei longer and more numerous. The subiculum, when dry, becomes rimose as in species of Corticium. The spores in our specimens are minute, elliptical, .0002 in. long, .0001 to .00012 broad.

Hydnum acutum, *Pers.*

Decaying wood of deciduous trees. Sevey. July.

The species of Persoon has been regarded as having doubtful value by some European authors. Our plant agrees tolerably well with his description. It forms irregular, scarcely noticeable spots, one or two inches broad. The subiculum is scarcely more than a slight mealiness or prinnosity, with a somewhat indefinite margin. It is subcinereous when moist, whitish or pallid when dry. The aculei are very distant, acute or setiform, rather rigid but scarcely visible to the naked eye. The spores are subglobose, slightly angular, .00016 to .0002 in. in diameter.

Irpex rimosus, *n. sp.*

Resupinate, at first suborbicular, then confluent, forming irregular patches, thin, whitish or pallid, becoming rimose-areolate, the margin more or less free or slightly reflexed; hymenium, at first subporous or dædaloid, the dissepiments soon prolonged into aculei which are either subulate compressed or incised, and at length fasciculate from the cracking of the subiculum.

Bark of birch, *Betula lutea*. Catskill mountains. September.

Corticium mutatum, *n. sp.*

Effused, forming irregular extended patches; hymenium tumid when moist, centrally tuberculose, with more or less evident radiating folds toward the margin, much thinner when dry, nearly even, rimose, dingy yellowish inclining to cream color or slightly tinged with flesh color, the margin byssoid or subfimbriate, white; spores oblong, colorless, straight or slightly curved, .0006 to .0007 in. long, .00016 to .0002 broad.

Dead bark of poplar *Populus tremuloides.* Sevey. July.

The species is related to *Corticium lœve,* but differs in its color and in the character of its spores. It is remarkable for the difference between the fresh moist specimens and the dry ones. In the former the hymenium is so uneven that it is suggestive of Phlebia, but in the latter the folds and tubercules have disappeared and the hymenium has become rimose, revealing the white subiculum in the chinks. This change is suggestive of the specific name.

Corticium Berkeleyi, *Cke.*

Decaying wood of willow, *Salix alba.* Copake. June.

The specimens have been identified by comparison only, as I have seen no description of this species. They are to this extent doubtful.

Corticium subaurantiacum, *n. sp.*

Effused, soft, thin, the tomentose subiculum and margin bright orange; hymenium even, grayish-yellow or orange tinted, having a pruinose appearance, sometimes slightly rimose when dry; spores subelliptical, .0003 in. long, .0002 broad.

Dead bark of spruce, *Picea nigra.* Rainbow. August.

It bears some resemblance to *Merulius subaurantiacus*, but there are no folds in the hymenium.

Corticium basale, *n. sp.*

Effused, closely adnate, tough, at first whitish, the hymenium becoming brown with a waxy appearance, the broad margin dingy-white.

Base of living trees. Whitehall. August.

It follows the inequalities of the bark from which it is inseparable. It is remarkable for its waxy appearance, but very tenacious substance. It was found on the bases of ash, *Fraxinus Americana* and basswood, *Tilia Americana.* The specimens were sterile.

Peniophora unicolor, *n. sp.*

Effused, thin, membranous, soft, subseparable, even, subpulverulent, pale ochraceous, the margin and subiculum concolorous with or a little paler than the hymenium, sometimes extending in brancing string-like fibers; metuloids sparse, subcylindrical, obtuse, rough, .0016 in. long, .0003 broad.

Decaying wood. Syracuse. September. *Underwood.*

The specimens are imperfect, being destitute of spores, but the species is apparently quite distinct by the characters given.

Clavaria similis, *n. sp.*

Cæspitose, subtenacious, slender, three to four times dichotomously branched, pallid, the ultimate ramuli short, obtuse, the axils rounded; spores subglobose, .00025 in. in diameter, mycelium white.

Plant 1 to 2 in. high. Woods. Plattsburgh. August.

This scarcely differs from *Clavaria muscoides*, except in its paler color and in the obtuse tips of the ultimate ramuli.

Ditiola conformis, *Karst.*

Decaying wood of birch, *Betula lutea.* Catskill mountains. September.

Mutinus bovinus, *Morg.*

Sandy soil. Manor. September. The spores are the same as in *Mutinus Ravenelii*, to which this plant appears to be too closely related.

Geaster fimbriatus, *Fr.*

Ground in woods. Whitehall. August.

This is the twelfth species of Geaster that has been found in our State. Most of the species are quite rare and some have been found but once.

Scleroderma Geaster, *Fr.*

Sandy soil. Manor. September.

Enteridium Rozeanum, *Wing.*

Decaying wood. North Greenbush. This is *Reticularia? Rozeana* Rost. It resembles *Reticularia Lycoperdon* externally and has sometimes been confused with it.

Cribraria violacea, *Rex.*

Bark of balsam fir. Adirondack mountains. *G. A. Rex.*

Comatricha longa, *n. sp.*

[Plate 3. Figs. 1 to 5.]

Stems growing from a shining membranous hypothallus, closely gregarious, penetrating the peridia as a columella, capillary, black;

peridia narrowly cylindrical, generally elongated, six to twenty lines long, often flexuous, very fugacious, grayish-black; capillitium rising from the columella, its branches generally somewhat reticulately connected near their base and forming a few large meshes, externally divided into slender, sharp-pointed, divergent, spine-like branchlets, with free apices, blackish; spores globose, even, .0003 to .00035 in. in diameter.

Bark of willow, *Salix Babylonica*. Flatbush. September. *Rev. J. L. Zabriskie.*

In the color of the spores and capillitium as seen in mass this plant resembles *Stemonitis fusca.* In size also it equals or exceeds that species. But in the character of the capillitium it is quite peculiar. Sometimes its branches, which grow in an alternate manner from the sides of the columella, are two or three times forked and entirely free, but usually they are somewhat connected with each other near the columella, but have their ultimate ramuli wholly free. By this character it differs considerably from other species of the genus, but scarcely enough, it seems to me, to warrant its generic separation. The columella generally passes through the capillitium nearly or quite to its apex, but sometimes in very long specimens it is lost above in the few large meshes. Fine specimens of this remarkable species have been sent me from Philadelphia, Pa., where it is not rare, by Messrs. Stevenson, Rex and Wingate. Specimens from the last gentleman are quite two inches long.

Comatricha subcæspitosa, *n. sp.*

[Plate 3, Figs. 6 to 9.]

Stems subcæspitose or loosely clustered, thickened at the base, black, about half the length of the sporangia, extending through the capillitium as a columella; peridia ovate-oblong, obtuse, fugacious; capillitium growing from the columella, reticulately connected and also forming a superficial net with coarse meshes, blackish; spores globose, even, blackish-brown, .0004 to .00045 in. in diameter.

Decorticated wood of hemlock, *Tsuga Canadensis.* Sandlake. July.

This species resembles *Stemonitis fusca* in color. In size it approaches *Comatricha typhina.* Its capillitium is variously connected, and appears to combine the reticulation of Comatricha and Stemonitis, but on account of the net work not being wholly parallel to the walls of the peridium it is placed in Comatricha. The plants are mostly collected in small groups or loose clusters of two to ten individuals. Its coarser meshes and larger spores distinguish it from *C. typhina.*

Plasmodiophora Brassicæ, *Wor.*

Roots of cabbage, *Brassica oleracea.* Menands. October.

This fungus causes swellings or excrescences in the roots of the host plant. These swellings have received the common name "club-root." Cabbages attacked by this disease fail to perfect their heads. The affected roots should be taken from the ground and burned in order to destroy the fungous spores they contain. It has been recommended that the ground should not again be planted with cabbages or other plants of the Mustard family until after the lapse of two or three years, in order that the germs of this disease, which may be in the soil, may have time to perish. In the meantime other crops may occupy the land.

Phyllosticta bicolor, *n. sp.*

Spots rather large, two to six lines broad, irregular, at first brown, then centrally whitish, with a broad brown margin, brown beneath; perithecia epiphyllous, occupying the whitish or central part of the spots, minute, .004 to .005 in. broad, black; spores minute, oblong, colorless, .0002 to .00025 in. long, .00008 to .0001 broad.

Living leaves of thimbleberry, *Rubus odoratus.* Whitehall. August.

Phyllosticta Prini, *n. sp.*

Spots small, suborbicular, white or grayish above, brownish beneath; perithecia small, .007 in. broad, epiphyllous, depressed, black; spores elliptical or oblong, .0003 to .0005 in. long, .00016 broad.

Living leaves of winterberry, *Ilex verticillata.* Catskill mountains. September.

Phyllosticta Silenes, *n. sp.*

Spots large, sometimes occupying half the leaf, pallid; perithecia amphigenous or hypophyllous, minute, punctiform, black; .004 to .005 in. broad; spores oblong or cylindrical, colorless; .0004 to .0005 in. long, .00015 to .0002 broad.

Living leaves of sleepy catchfly, *Silene antirrhina.* Copake Iron Works. June.

Phyllosticta Caricis, *Sacc.*

Living leaves of Pennsylvanian sedge, *Carex Pennsylvanica.* Catskill mountains. September.

Phoma allantella, *n. sp.*

Perithecia subglobose, subsuperficial, .007 to .008 in. broad, black; spores minute, allantoid, .00016 to .0002 in. long, about half as broad.

Whitened decorticated wood of oak, *Quercus rubra.* Catskill mountains. September.

Phoma Candollei, *Sacc.*

Leaves of box, *Buxus sempervirens.* Patchogue. August.

Haplosporella Ailanthi, *E. & E.*

Dead bark of *Ailanthus glandulosus.* Lyndonville. May. *C. E. Fairman.*

Diplodia Æsculi, *Lev.*

Dead bark of horse chestnut, *Æsculus Hippocastanum.* Lyndonville. *Fairman.*

Leptostroma Polygonati, *Lasch.*

Dead stems of giant Solomon's seal, *Polygonatum giganteum.* Menands. May.

Didymosporium effusum, *Schw.*

Dead bark of slippery elm, *Ulmus fulva.* Copake Iron Works. June.

Our plant differs somewhat from the type, and may be designated as

Var. *distinctum.* Heaps rotund, erumpent, distinct; spores oblong, oblong-ovate or elliptical, uniseptate, rarely biseptate, colored, .0014 to .0018 in. long, .0006 to .0008 broad, oozing out and staining the matrix.

Septoria Helianthi, *E & K.*

Living leaves of sunflower, *Helianthus annuus.* Rainbow. August.

Our plant is a variety in which the perithecia are amphigenous and the spots by confluence are very large and irregular.

Septoria thecicola, *B. & Br.*

Capsules and pedicels of moss, *Polytrichum juniperinum.* Sevey. July.

Cytospora orthospora, *B. & C.*

Dead branches of clammy locust, *Robinia viscosa.* Sandlake. June.

Melanconium magnum, *Berk.*

Dead bark of sugar maple, *Acer saccharinum.* Stark, St. Lawrence county. July.

Puccinia Eleocharidis, *Arthur.*

Living stems of *Eleocharis palustris.* Shore of Lake Champlain near Plattsburgh. August.

Puccinia mammillata, *Schrœt.*

Living leaves of hedge bindweed, *Polygonum dumetorum.* Flatbush. October. *Zabriskie.*

Puccinia Malvacearum, *Mont.*

Living leaves of hollyhock, *Malva sylvestris*. Geneva. May. *F. E. Emery*. Lyndonville, *C. E. Fairman*. This fungus causes a disease in hollyhocks that has sometimes been so severe in Europe as to prevent the cultivation of these flowers.

Puccinia obscura, *Schrœt.*

Living leaves and stems of field rush, *Luzula campestris*. Menands. May.

Our specimens do not fully agree with the description of the European fungus, but the agreement morphologically is so close that it does not seem advisable at present to separate our plant specifically. According to Plowright, "the teleutospores are not formed until August or September," but in our specimens they occur in May, and are intermingled with the uredospores, occurring in the same sorus with them. Mesospores were not seen. The name *Puccinia obscura* var. *vernalis* is proposed for this fungus, as it will indicate the principal character wherein it differs from the European plant. The teleutospores are not more highly colored than the uredospores, though this may be due to their young condition.

Ustilago Austro-Americana, *Speg.*

Living leaves and spikes of Pennsylvanian knotweed, *Polygonum Pennsylvanicum*. Flatbush. September. *Zabriskie*.

"The spores ooze out in tendrils sometimes six lines long." This is the fourth species of smut that has been found on species of Polygonum in our State.

Doassansia Alismatis, *Cornu.*

Living leaves of water plantain, *Alisma Plantago* var. *Americana*. Sharon Springs. July. *W. A. Setchell*.

Plasmopara Viburni, *n. sp.*

Spots irregular, somewhat indefinite, more or less confluent along the principal veins of the leaves, brown or reddish-brown; hyphæ hypophyllous, sparse, inconspicuous, bearing two to four short, nearly horizontal and mostly alternate branches near the top, the ultimate ramuli terminating in two or three sterigmata or subulate points; conidia terminal on the branches, subglobose, ovate or broadly elliptical, nearly colorless, generally .0006 to .0008 in. long, .0005 to .0006 broad, occasionally .0012 to 0016 in. long.

Living leaves of arrow wood, *Viburnum dentatum*. Baiting Hollow Station, Long Island. September.

This fungus is very closely allied to *Plasmopara viticola*, B. & De T. *Peronospora viticola* of most authors, of which it may prove to be only a variety. It is much smaller than that plant and does not form dense downy tufts or patches, but is so scattered and sparse in its mode of growth as to be not easily visible to the naked eye. Conidia of monstrous size are not rare, but oöspores were not seen. Its habit of following the veins of the leaf is peculiar.

Sporotrichum cohærens, *Schw.*

On an old wooden pail in a cellar. Menands. September.

Sporotrichum cinereum, *n. sp.*

Patches oblong, effused, pulverulent, cinereous; hyphæ very slender, .00015 in. broad, branched, crispate-flexuous, denticulate; spores abundant, globose, .00012 to .00016 in. in diameter.

Wood of apple tree. Manor. September.

Coniosporium Fairmani, *Sacc.*

Dried shell of Hubbard squash. Lyndonville. *Fairman.*

Coniosporium culmigenum, *Berk.*

Dead stems of motherwort, *Leonurus cardiaca.* Lyndonville. *Fairman.*

The spores in these specimens are smaller than in the type. The specimens are labeled var. *minor.*

Coniosporium Polytrichi, *n. sp.*

Heaps of spores minute, .003 to .004 in. broad, closely gregarious, superficial, black; spores globose, granulose, black, .00065 to 0008 in. in diameter.

Capsules of moss, *Polytrichum juniperinum.* Sevey. July.

Torula convoluta, *Harz.*

Decaying tubers of potato, *Solanum tuberosum.* Menands. April.

Echinobotryum atrum, *Cd.*

Decaying tubers of potato. Menands. April. Flatbush. *Zabriskie.*

Stachybotrys elongata, *n. sp.*

[Plate 3. Figs. 10 to 13.]

Hyphæ elongated, intricately branched, sparingly septate, minutely roughened, forming brown tomentose cushion-shaped tufts one to three lines in diameter, the fertile branches terminated by a capitate cluster of spores borne upon more or less elongated sporophores, which are mostly thickened or bulbous at the base; spores globose, colored, .00025 to .0003 in. in diameter.

Dead branches of maple, *Acer rubrum*. Manor. September.

The pulvinate tufts resemble those of *Streptothrix atra*, but are paler in color.

Zygodesmus muricatus, *E. & E.*

Decaying wood. Lyndonville. May. *Fairman.*

Dematium parasiticum, *n. sp.*

[Plate 3. Figs. 14 to 18.]

Fertile hyphæ erect, simple or slightly branched, septate, colored, bearing catenulate spores at their tips and on their sides; spores subelliptical or limoniform, mostly pointed at one or both ends, colored, .0004 to .0005 in. long, .0002 to .00025 in. broad.

Parasitic on some Hydnum, apparently *H. carbonarium*. Rainbow. August.

The parasite gives a smoky-black hue to the Hydnum.

Fusicladium destruens, *n. sp.*

[Plate 3. Figs. 19 to 22.]

Hyphæ rather short, .0008 to .002 in. long, fasciculate, continuous or with one or two septa near the base, colored, forming small olive-green tufts or patches; spores acrogenous, simple or occasionally uniseptate, sometimes slightly catenulate, elliptical or oblong, colored, .0003 to .0008 in. long, .0002 to .0003 broad. Living leaves of oats, *Avena sativa*. Sevey. July.

In the affected plants, the apical part of the leaf first shows symptoms of disease. The tissues die and the color changes to rusty-red or dead-brown. This change goes on till the whole leaf is involved. Soon the minute and inconspicuous tufts of the fungus appear. In the southern part of St. Lawrence county, which was visited by the writer the past summer, scarcely a field of oats was free from this disease. So prevalent was it, that the general color of the fields was changed thereby, and it was the opinion of the owners that their oats were "rusting" badly. Upon close examination, however, no "rust" was to be found. In its stead the discoloration of the leaves and the fungus now described appeared. It is, apparently, a very injurious and destructive fungus. The mycelium is pale and provided with numerous conspicuous septa.

Cercospora granuliformis, *E. and H.*

Living leaves of violets, *Viola blanda*. Sevey. July.

Cercospora Apocyni, *E. and K.*

Living leaves of Indian hemp, *Apocynum cannabinum.* Whitehall. August. The hyaline character of the hyphæ indicate that the species belongs rather to Cercosporella.

Sporodesmium antiquum, *Cd.*

Decaying wood. Flatbush. September. *Zabriskie.*

Macrosporium Polytrichi, *n. sp.*

Hyphæ erect, septate, somewhat nodulose, colored, .003 to .004 in. long, .0002 broad, forming continuous olive-green patches; spores extremely variable, elliptical, oblong or clavate, colored, 2 to 9 septate, with or without longitudinal septa, .0008 to .0024 in. long, .0003 to .0006 broad.

Capsules of moss *Polytrichum juniperinum.* Sevey. July.

Stilbum Spraguei, *B. & C.*

Dead stems of cabbage, *Brassica oleracea.* Menands. August.

The spores in our plant are elliptical, .00025 in. long. The receptacle becomes bay-red or chestnut color in drying.

Isaria aranearum, *Schw.*

On a dead spider. Manor. September.

Our plant does not agree rigidly with the description of *I. aranearum*, but the differences appear too slight to warrant its separation. The club is paler with scarcely any incarnate tint. The spores are very minute, .00012 to .00016 in. long, about half as wide.

Tubercularia carpogena, *n. sp.*

Receptacle minute, depressed, glabrous, subsuperficial, red; spores oblong or subfusiform, straight or slightly curved, .0004 to .0005 in long, pointed at each end, produced on slender branched sporophores.

Ripe fruit of blackberry, *Rubus villosus.* Menands. August.

This appears at first sight like a minute species of Peziza or Mollisia. It discolors the affected drupes, making them red like itself. It is therefore easily overlooked.

Fusarium Sclerodermatis, *n. sp.*

Sporodochia minute, convex, reddish-yellow or orange; sporophores somewhat branched, about as long as the spores; spores simple or with two or three obscure septa, slightly curved, very acute at each end, .0012 to .0018 in. long, .00016 broad.

On the peridium of *Scleroderma vulgaris.* Manor. September.

Glœosporium leptospermum, *n. sp.*

Spots yellowish, small, irregular, subindeterminate; acervuli amphigenous, small, rotund, oblong or irregular, erumpent, brown or blackish; spores subcylindrical, slightly pointed, straight, colorless, .0008 to .001 in. long, .00016 broad.

Living fronds of *Pteris aquilina.* Sevey. July.

By its slender spores, this species approaches the genus Cylindrosporium.

Epicoccum purpurascens, *Ehren.*

Rind of decaying squashes. Menands. November.

Underwoodia, *gen. nov.*

Receptacle fleshy, more or less elongated, columnar or stem-like, externally uneven sulcate-costate or lacunose, everywhere ascigerous, internally excavated, lacunosely fistulose or containing several longitudinal cavities; asci eight-spored, paraphysate.

A genus of Helvellaceæ, allied to Helvella. It is as if the stem of *Helvella crispa* should be deprived of its pileus and entirely covered with an adnate hymenium, thus becoming a stemless receptacle; or as if the receptacle of a Morchella were greatly elongated and stemless.

Dedicated to Professor L. M. Underwood.

Underwoodia columnaris, *n. sp.*

[Plate 4. Figs. 1 to 4.]

Receptacle columnar, straight or slightly curved above, externally somewhat sulcate-costate or lacunosely uneven, whitish or brownish, within white, containing several longitudinal cavities, stemless; asci cylindrical, .007 to .008 in. long .0006 broad; spores elliptical verruculose, .0008 to .0009 in. long, .0005 broad, colorless, containing a single large nucleus.

Plant 4 to 6 inches high, 8 to 12 lines broad.

Among fallen leaves. Kirkville, Onondaga county. July.

Three specimens of this singular fungus were found by *Professor J. T. Fischer.* To facilitate their preservation by drying they were divided longitudinally. Halves of two of them were sent to me by Professor Underwood and from this material and from accompanying notes and sketches I have drawn up the description and figure. It is evidently a rare as well as a remarkable fungus.

Lachnella cerina, *Phil.*

Decaying wood of birch, *Betula lutea.* Cascadeville, Adirondack mountains. September.

Tapesia Rosæ, *Phil.*

Dead stems of wild rose. Lyndonville. May. *Fairman.*

Helotium mycetophilum, *n. sp.*

Receptacles gregarious, minute, .01 to .014 in. broad, sessile or with a very short stem, plane or convex, scarcely margined, yellowish externally, the hymenium orange; asci oblanceolate, .003 in. long, .0004 broad, paraphyses filiform; spores oblong-elliptical, simple, the endochrome sometimes divided, .0006 to .0007 in. long, about half as broad.

On old *Polyporous fomentarius.* Rainbow. August.

Much smaller than *H. citrinum* and distinguished from it by its larger spores and orange-colored hymenium. Also distinct from *H. episphæricum* by the character of the spores.

Cenangium rubiginosum, *Cke.*

Dead twigs of water beech, *Carpinus Americana.* Mechanicville. July.

Coronophora gregaria, *Fckl.*

Dead branches of mountain ash, *Pyrus Americana.* Cascadeville. July.

Hæmatomyces faginea, *n. sp.*

[Plate 4. Figs. 5 to 7.]

Tremelloid, cerebriform, one to two inches in diameter, gyrose-lobate, glabrous, shining, raisin color without and within; asci nearly cylindrical, eight-spored, .0024 in. long, .0003 broad; paraphyses slender, very slightly thickened above; spores generally uniseriate, narrowly elliptical, colorless, .0003 in. long, .00015 to .0002 broad.

Dead trunks of beech, *Fagus ferruginea.* Rainbow. August.

The plants are nearly as thick as they are broad and appear as if composed of several confluent individuals. The color resembles somewhat that of a ripe Catawba grape though darker. Without examination of the spores the plant might easily be taken for a species of Tremella. It shrinks very much in drying and is then very hard.

Barya parasitica, *Fckl.*

[Plate 4. Figs. 13 to 17.]

Parasitic on a sphæriaceous fungus, *Bertia moriformis,* on decaying wood of beech. Catskill mountains. September.

Our plant differs in some respects from Fuckel's figure and description of the species, yet it is apparently only a variety and not specifically distinct. The perithecia are crowded together in dense tufts or clusters and sometimes taper above into a rather long neck. The asci and spores are far more slender and somewhat longer than those of the European plant as represented by Fuckel's figure and description. The globose termination of the ascus is at the apex, not at the base as Fuckel has it. Because of these differences I have given a figure of our plant and designated it as variety *cæspitosa.*

Hypoxylon effusum, *Nits.*

Decaying chestnut wood. Flatbush. September. *Zabriskie.* The smaller spores distinguish this species from *H. serpens.*

Eutypa flavovirescens, *Tul.*

Dead branches. Lyndonville. May. *Fairman.*

Eutypella longirostris, *n. sp.*

[Plate 4. Figs. 8 to 12.]

Stroma suborbicular, convex, formed of the slightly changed substance of the bark, whitish, covered by a black crust, often somewhat confluent in series; perithecia minute, globose, few or many in a stroma; ostiola elongated, fasciculately crowded, straight or flexuous, often fully one line long, radiately sulcate at the apex and sometimes sulcate on the sides also, black; asci clavate, pedicellate, the sporiferous part .0007 to .0009 in. long, .00016 broad; spores minute, curved, .0002 to .00025 in. long.

Bark of elm, *Ulmus Americana.* Sandlake. *Peck.* Syracuse. *Underwood.*

This is easily distinguished from the allied species by its very long ostiola and its very short asci and spores.

Anthostoma microsporum, *Karst.*

Dead bark of alder, *Alnus incana.* West Albany. May.

Cryptosporella hypodermia, *Sacc.*

Dead branches of slippery elm, *Ulmus fulva.* Copake Iron Works. June.

Leptosphæria dumetorum, *Niessl.*

Dead branches of cultivated honeysuckle. Lyndonville. May. *Fairman.*

Herpotrichia rhodomphalia, *Sacc.*

Decaying wood of locust, *Robinia Pseudacacia.* Yaphank. September.

Lophiotrema auctum, *Sacc.*

Dead stems of wild rose. Lyndonville. June. *Fairman.*

The three following species are extra-limital and are not yet to be included in the New York flora. Being considered new species it is desirable that descriptions of them should be published.

Lepiota farinosa, *n. sp.*

Pileus thin, rather tough, flexible, at first globose or ovate, then campanulate or convex, covered with a soft dense white floccose-farinose veil which soon ruptures, forming irregular, easily detersible scales, more persistent and sometimes brownish on the disk, flesh white, unchangeable; lamellæ close, free, white, minutely floccose on the edge; stem equal or slightly tapering upward, somewhat thickened at the base, slightly farinose, often becoming glabrous, hollow or with a cottony pith above, solid at the base, white, pallid or straw-colored, the annulus lacerated, somewhat appendiculate on the margin of the pileus, evanescent; spores subovate, .0004 to .0005 in. long, .0003 broad. Pileus 1.5 to 2.5 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick.

Mushroom beds in a conservatory. Boston, Mass. March. Communicated by *E. J. Forster*.

This species is related to *L. cepæstipes*, from which it may be distinguished by its pileus which is not plicate on the margin and by its larger spores. It is edible. It is very distinct from *Amanita farinosa*.

Pholiota æruginosa, *n. sp.*

Pileus hemispherical or convex, obtuse, glabrous, greenish, becoming tinged with brown, sometimes slightly rimose-areolate, flesh pale or whitish, tinged with green; lamellæ broad, rounded behind, adnexed, pale ochraceous when young, becoming bright ferruginous or orange ferruginous; stem solid, glabrous or slightly fibrillose, somewhat sulcate-striate, colored like the pileus, sometimes curved, flexuous or cæspitose; annulus slight, lacerated, evanescent; spores copious, bright ferruginous, subelliptical, .0003 to .00035 in. long, .00016 to .0002 broad.

Pileus .5 to 2 in. broad; stem 1 to 1.5 in. long, 2 to 3 lines thick.

Decaying railroad ties of oak. Trexlertown, Pennsylvania. October. *William Herbst.*

This species is remarkable for its greenish color and for its abundant bright colored spores, which sometimes fall upon and completely cover the surface of the lower pilei in a tuft. It is easily distinguished from *Stropharia æruginosa* by its solid stem, dry pileus and bright ferruginous lamellæ and spores. It belongs to the Section Ægeritini.

Phellorina Californica, *n. sp.*

Peridium subobconic, thin, even or slightly rimose-areolate, 9 to 12 lines high, 12 to 18 lines broad at the top, whitish becoming rusty-ochraceous, the vertex convex; stem nearly equal, solid but softer within, clothed with a whitish bark, colored like the peridium with which it is continuous, 2.5 to 3 in. long, 4 to 5 lines thick; capillitium sparse; spores globose, ochraceo-ferruginous, .00025 to .0003 in. in diameter.

Mohave desert, California. *S. B.* and *W. F. Parish.* Communicated by *C. G. Pringle.*

Two specimens were collected in May, 1882. These were sent me in the dried state, but did not show the mode of dehiscence; but all the characters seen indicate that the plant is a Phellorina, differing from the published species in its obconic peridium and in the color of the spores. In *P. inquinans* these are described as golden yellow; in *P. erythrospora* and *P. squamosa* as brick-red. The peridium in all these is described as depressed-globose; but in our specimens it is more nearly the shape of a rather broad wine-glass. There are fragments of a whitish bark remaining on the stem, and appearances of a thinner one on the peridium. Where the bark has fallen the dry stem is sulcate-striate and rusty-ochraceous. Subglobose colorless cells, considerably larger than the spores, are intermingled with them. They are probably free basidia.

(D.)

REMARKS AND OBSERVATIONS.

Ranunculus repens, *L.*

A form of this species was found many years ago growing on the banks of the Erie canal between Rome and Oriskany. It was described in Beck's Botany under the name *Ranunculus Clintonii.* It is yet found in this locality, and also occurs by the roadside just at the southeastern limits of Rome.

A double-flowered form is sometimes seen in flower gardens and occasionally escapes from cultivation. It has been found in the streets of Bergen, Genesee county, and by the side of the railroad at Union Church, Albany county. In the latter case its origin can be traced to a neighboring flower garden.

Cardamine hirsuta, *L.*

A tall, leafy and very glabrous form. Menands. July.

Rhus Toxicodendron, *L.*

The entire-leaved variety occurs at Yaphank, Long Island. It has been reported to me as comparatively harmless so far as poisonous quality is concerned, and my experience in handling it was entirely without harm.

Trifolium hybridum, *L.*

A white-flowered form. Whitney's Point. June.

Lythrum alatum, *Pursh.*

This western plant is well established at Selkirk, Albany county.

Sium cicutæfolium, *Gmel.*

Var. *brevifolium.* Leaflets lanceolate or linear-lanceolate, one inch or less in length. Cedar Lake, St. Lawrence county.

Carum carui, *L.*

A form with pinkish-tinted flowers. Feurabush, Albany county. Also near East Bloomfield, Ontario county.

Diodia teres, *Walt.*

Manor, L. I. This plant is apparently a recent introduction in this locality. It occurs also on Staten Island.

Solidago nemoralis, *Ait.*

This species is quite variable. A form was found near Yaphank in which the panicle is greatly elongated, being a foot or more in length. It is leafy below and in this respect simulates *S. caesia.*

Solidago puberula, *Nutt.*

This golden-rod is quite common on the eastern part of Long Island. Its general appearance, except in the color of the flowers, is quite similar to that of *S. bicolor.* It also occurs on the Shawangunk and Catskill mountains and is very abundant in the Rainbow lake region of the Adirondacks. In this locality it is less puberulent and flowers about a month earlier than on Long Island.

Solidago speciosa, *Nutt.*

Var. *angustata* was found on Long Island, near Baiting Hollow station. Its narrow virgate panicle appears at first sight quite similar to that of *S. puberula.*

Achillea millefolium, *L.*

Near Colton, St. Lawrence county. The form with red ray flowers, which give it an ornamental appearance.

Plantago lanceolata, *L.*

A singular form with compound ovate spikes. Whitney's Point.

Potamogeton zosteræfolius, *Schum.*

Cedar lake, St. Lawrence county. July.

Juncus effusus, *L.*

A form with distinctly striate scapes and densely crowded panicles, but the pods scarcely pointed. It is, therefore, intermediate between the typical form and the variety *conglomeratus*. Rainbow. August. *Juncus filiformis* occurs in the same locality.

Juncus acuminatus, *Mx.*

Wet ground. Selkirk. July. The variety *legitimus* with heads of numerous flowers.

Juncus scirpoides, *Lam.*

A few plants of the variety *macrostemon* of this, with us, rare species were found in wet sandy soil near Yaphank. September.

Botrychium matricariæfolium, *A. Br.*

Ray Brook, Essex county. Both this species and the allied *B. lanceolatum* are now known to occur in the Adirondack region.

Clitocybe laccata, *Scop.*

This is an exceedingly variable species, and it might be well to designate some of the strongly marked variations by name. Variety *pallidifolia*. Lamellæ whitish or pallid, decurrent. Selkirk.

Omphalia striipilea, *Fr.*

Var. *albogrisea*. Pileus pale gray. Prostrate trunks of maple, *Acer saccharinum*. Rainbow. August.

Coprinus micaceus, *Fr.*

The pileus is sometimes sprinkled with more or less persistent squamules. The micaceous particles are not always clearly discernible on it.

Coprinus fimetarius, *Fr.*

Of this very variable species there is a small form growing on decayed wood in woods. It has the spores rather smaller than in the type, they being .0004 to .00045 in. long, .0003 broad. It might be designated var. *silvicola*.

Cortinarius croceus, *Schæff.*

Most authors consider this a variety of the very variable *C. cinnamomeus*. The form of it mentioned by Fries as having the stem and lamellæ olivaceous occurs in sphagnous swamps between Rainbow lake and Jones' pond.

Lactarius fuliginosus, *Fr.*

A form with the pileus colored like that of *Lactarius lignyotus*, but with the lamellæ much closer than in that species was found in a swamp near Sevey. July.

Hygrophorus Cantharellus, *Schw.*

This is very common in the Adirondack region and is also very variable in color. In wet weather it is plentiful in groves of poplar, especially where there is an undergrowth of brakes, *Pteris aquilina*.

Var. *flava*. Pileus and stem pale yellow; lamellæ arcuate, strongly decurrent.

Var. *flavipes*. Pileus red or reddish; stem yellow.

Var. *flaviceps*. Pileus yellow; stem red or reddish.

Hygrophorus miniatus, *Fr.*

This species is also common in the Adirondack region and often has the pileus one to two inches broad. It sometimes grows in circles and is frequently cæspitose, in which case the stem is apt to be compressed or irregular. Its bright colors render it very attractive. The pileus is often minutely squamulose or roughened with a yellowish scurf. The lamellæ are yellowish, or yellow tinged with red.

Lentinus strigosus, *Schw.*

This species was described from specimens that grew on trunks of the tulip tree. It is not rare with us, growing on stumps, trunks and branches of birch, oak and other deciduous trees. It was found this season growing on trunks of balsam fir at Ray Brook, Essex county.

Boletus speciosus, *Frost.*

Var. *brunneus*. Pileus brown; otherwise like the type. Sevey. July.

Polyporus perennis, *Fr.*

The pileus sometimes becomes whitish or grayish-white with age. Sevey. July.

Polyporus sulphureus, *Fr.*

This showy species occurs on both hard and soft wood. It sometimes protrudes from dead spots in standing living trees, especially of oak, chestnut and cherry. The yellowish milk or juice is not always present.

Polystictus versicolor, *Fr.*

Var. *fumosiporus*. Pores smoky-brown; otherwise as in the type. Catskill mountains. September.

Poria mutans, *Pk.*

Var. *tenuis*. Very thin, tender, the margin often wide and downy. Bark and wood of spruce, *Picea nigra*. Sevey. July.

The species appears to differ from *P. cruentata* Mont. in having the pores and subiculum of one uniform yellowish or subochraceous color, which changes where bruised or in drying to a dull red or subincarnate hue.

Solenia fasciculata, *Pers.*

On old pilei of *Polyporus piceinus.* Sevey. July.

Stemonitis Morgani, *Pk.*

Fine large specimens of this species were found on an alder trunk, near Catskill. June.

Septoria Violæ, *West.*

Var. *oligocarpa.* Spots small, white; perithecia few, black. Living leaves of *Viola blanda.* Sevey. July.

Geoglossum luteum, *Pk.*

Var. *fumosum.* Club smoky yellow, less compressed; stem dingy, scarcely squamulose.

Mossy banks, Adirondack mountains. August.

Cenangium balsameum, *Pk.*

Var. *abietinum.* Receptacles smaller than in the type, externally clothed with a yellowish-green pulverulence when young, naked and black when old; spores subclavate.

Dead branches of hemlock, *Tsuga Canadensis.* Whitehall. August. *Gelatinosporium abietinum* was associated with it.

Sphærotheca pruinosa, *C. & P.*

The typical form was found on leaves of *Rhus glabra.* Specimens have now been found on living leaves of the staghorn sumach, *Rhus typhina.* In these the mycelium is a little more dense. Plattsburgh. August.

(E.)

NEW YORK SPECIES OF ARMILLARIA.

Armillaria, *Fr.*

Hymenophorum continuous with the stem. No universal veil; partial veil forming an annulus, sometimes only indicated by the scales which adorn the stem and terminate above in the form of a ring. Spores white.

This genus is separated from Amanita and Lepiota by the absence of a universal veil and by the lamellæ which are attached to the stem. The three sections, in which the species were grouped by Fries, closely correspond respectively to the three genera Tricholoma, Clitocybe and Collybia. From these they are distinguished by the presence of an annulus. They are also separated from Pholiota and Stropharia by their white spores.

Our species are few, and with one exception very rare. Three have been found in New York; eight in the United States. Most of the species grow on the ground; some on both wood and ground.

The name Armillaria is derived from the Latin *armilla*, a bracelet, and has reference to the annulus or ring that encircles the stem.

Synopsis of the Species.

	Pileus wholly white, glabrous	A. ponderosa.
	Pileus not wholly white or not glabrous	1
1	Pileus adorned with dark spots, margin even	A. nardosmia.
1	Pileus adorned with hairy squamules, margin striate	A. mellea.

Armillaria ponderosa, *Pk.*

Heavy Armillaria.

Report 26, p. 50. *Agaricus magnivelaris*, Rep. 29, p. 66.

Pileus thick, compact, convex or subcampanulate, smooth, white or yellowish, flesh white, the naked margin strongly involute, the slightly viscid veil persistent; lamellæ crowded, narrow, slightly emarginate, white inclining to cream color; stem stout, subequal, firm, solid, coated by the veil, colored like the pileus, white and furfuraceous above the annulus; spores nearly globose, .00016 in. in diameter.

Pileus 4 to 6 in. broad; stem 3 to 5 in. long, about 1 in. thick. Ground in woods. Columbia county. October.

The veil conceals the young lamellæ for a long time, and finally becomes lacerated and adheres in shreds or fragments to the stem and the margin of the pileus. This species has not been found since its discovery in 1872. In the Twenty-ninth report its name was changed to *Agaricus magnivelaris*, that it might not conflict with *Agaricus ponderosus* of Persoon; but as that is manifestly a species of Tricholoma, the giving of generic value to the subgenera of Fries permits the restoration of the original name to this species.

Armillaria nardosmia, *Ellis.*

Nard-smelling Armillaria.

Torr. Bull. Vol. VI, p. 75. *Agaricus rhagadiosus*. Report 33, p. 18.

Pileus fleshy, firm, thick and compact on the disk, thin toward the margin, whitish variegated with brown spots, with a thick, tough and separable cuticle, flesh white; lamellæ crowded, subventricose, slightly emarginate, whitish; stem solid, fibrous, not bulbous, sheathed below by the brown velvety veil, the annulus narrow, spreading, uneven on the edge; spores subglobose, .00025 in. in diameter.

Pileus about 3 in. broad; stem 1.5 to 3 in. long, 4 to 6 lines thick.

Ground in woods, Suffolk county. September.

This species is perhaps not specifically distinct from the European *Armillaria rhagadiosa,* to which it was referred in the Thirty-third Report, and with the description of which it agrees very closely, but that species is said to grow on trunks of trees, and to have the lamellæ decurrent. This I find only solitary on the ground, with lamellæ merely adnate or subdecurrent and with spores subglobose and about .00025 in. in diameter. No description of the European plant, so far as seen by me, gives the character or dimensions of its spores. Mr. Ellis remarks that the fresh plant has an aromatic odor like spikenard. *A. rhagadiosa* is also said to have a strong aromatic odor.

Armillaria mellea, *Vahl.*

HONEY-COLORED ARMILLARIA.

Hym. Europ. p. 44. Syl. Fung., Vol. V, p. 80.

Pileus fleshy, rather thin except on the disk, at first hemispherical or subconical, then convex or nearly plane, adorned with numerous hairy squamules, mostly striate on the margin, pale-yellowish, dingy-yellowish or honey-color or reddish-brown, flesh whitish, taste unpleasant; lamellæ subdistant, adnate or decurrent, whitish or pallid, often with rufescent spots when old; stem equal or slightly thickened at the base, stuffed or hollow when old, sometimes floccose-squamose, externally fibrous, pallid or brownish; spores .0003 to .0004 in. long, .0002 to .00025 broad.

Pileus 1 to 6 in. broad; stem 1 to 6 in. long, 3 to 10 lines thick.

Ground and decaying wood. Common. Late summer and autumn.

This species, like many others that are plentiful and have a wide geographical range, is extremely variable. In its mode of growth it is either solitary gregarious or cæspitose. It occurs both on the ground and on decaying wood of various trees, in woods and in cleared lands. It is especially abundant in recent clearings in hilly and mountainous districts, where it often forms large tufts composed of many individuals closely crowded together, growing especially about stumps and prostrate trunks. It is sometimes very small, having a pileus scarcely more than an inch broad, and a stem but an inch or two long. Again, it is of monstrous size, especially when solitary. Tufts a foot or more in diameter are not at all uncommon. I have seen them so abundant in the Adirondack region that they might easily have been gathered by the bushel.

The pileus is generally adorned with numerous rather small or minute hairy tufts or scales, which are mostly brown or blackish and more dense on the disk than toward the margin. Sometimes they are so crowded on the disk, especially in young plants, that they give a blackish or darker hue to that part of the pileus. In some forms of the species these hairy scales are wanting or they disappear with age, especially in wet weather, thus leaving the pileus glabrous. The margin of the pileus is normally striate, but forms occur in which it is even. *Armillaria laricina* Bolt, has a glabrous pileus with even margin, but it is regarded by Fries as a mere variety of this species, and the figure of *A. mellea,* as given in Berkeley's Outlines, table 4, indicates the correctness of this view. Occasionally the disk is somewhat prominent or subumbonate. In young specimens and in wet weather the pileus is frequently found moist or subhygrophanous. In color it varies from almost white, through intermediate shades, to a dark reddish-brown. The lamellæ are sometimes clearly emarginate, sometimes broadly adnate or even decurrent. They are generally whitish or more or less tinged with yellow. When old they are sometimes stained with brownish-red spots and dusted with the white spores. The stem varies considerably in color. It often assumes a brown or livid-brown color, especially toward the base or when old. Externally it is rather firm and fibrous, but within it is paler, spongy or even hollow. It is sometimes adorned with pale floccose scales, but these are apt to disappear with age. The veil is usually well developed and membranous, and in the mature plant encircles the stem like a spreading collar, but sometimes it is very thin, soon lacerated and somewhat evanescent. Occasionally it is of a webby character as in Cortinarius, and it is then more or less fugacious. Thus it is possible to find specimens of this species with the stem destitute of an annulus much to the disgust and perplexity of young students of mycology. In young plants the veil often entirely conceals the lamellæ. It is generally white or whitish, but sometimes it is stained about the edges with greenish yellow or olivaceous. The tomentum at the base of the stem also presents, in some specimens, the same hue.

Abnormal forms of the species sometimes occur. An abortive form consists of whitish irregular subglobose masses of cellular matter without any distinction of stem pileus or lamellæ. This corresponds to the abortive form of *Clitopilus abortivus*. It grows in company with the normal form. This fungus is regarded as destructive to the wood in which its mycelium lives.

Authors disagree as to its edible qualities. Badham says that it is a nauseous disagreeable fungus, however cooked, and that it is so repugnant to our notions of the savory that few would make a second attempt or get dangerously far in a first dish. Letellier says that all authors have indicated this mushroom as dangerous.

Richon and Rosé say that its taste is styptic and the acridity does not entirely disappear in cooking. The species is edible, but its quality is very indifferent. According to Vittadini it is preserved in vinegar, salt and oil for use in winter and its acridity is lost in cooking.

Gillet says that it has for a long time passed as poisonous and that modern botanists still disagree as to its properties, but in reality it is harmless, though it has an acrid disagreeable taste which disappears in cooking.

Stevenson says it is edible but tough.

Cordier says it is edible and loses its acridity in cooking, but the stems are tough and not used.

Dr. Curtis classes it with the edible species.

I have myself eaten it at different times, both fried and stewed, and always without harm. Though not unpleasant to my taste at the time of eating, it afterwards leaves an unpleasant burning sensation in the throat which lasts a short time.

It is not improbable that such a variable plant may differ somewhat in its properties in different localities and according to its different habitats. Its toughness also may vary according to the age of the specimens and the rapidity of their growth. These differences may account in part for the different estimate which has been made of it. Tastes also differ in different individuals. In my own case, only the pilei of young or barely mature specimens were used.

In the Adirondack region I have seen large tufts of this species without pilei. Some animal of considerable size, probably deer, had eaten the pilei, and recognizing the toughness and unfitness of the stems had left them standing where they grew.

SYNOPSIS OF THE UNITED STATES SPECIES OF ARMILLARIA.

	Pileus white or whitish	1
	Pileus some other color	4
1.	Pileus viscid	A. mucida.
1.	Pileus not viscid	2

2. Pileus adorned with blackish scales.......... A. ramentacea.
2. Pileus variegated with brown spots........... A. nardosmia.
2. Pileus without spots or scales 3
3. Annulus broad, persistent .... A. ponderosa.
3. Annulus narrow, deciduous.............. ...... A. constricta.
4. Pileus glabrous............ 5
4. Pileus adorned with hairy squamules............ A. mellea.
5. Stem bulbous .... A. bulbiger
5. Stem not bulbous............................... A. robusta.

(F.)

New York, *December* 9, 1889.

Chas. H. Peck, *State Botanist:*

My Dear Sir.—The growth of fungi on railroad ties, bridge, car and station timbers was unusually prolific the past season, with its large rainfall. Therefore a corresponding increase in the rate of decay, the effects of which will be more apparent next year. The fruiting of *Lentinus lepideus* Fr., on ties of yellow pine, *Pinus palustris,* Mill. in main-line tracks was so conspicuous in September, 1889, as to be noticeable from the trains. Pilei six to eight inches in diameter were frequent, while four in a cluster of smaller diameter, springing from the same mycelium, seemed to be a common mode of growth, this unusually wet season. One pileus in a place is the usual manner of growth in the railroad tracks in an ordinary season. The resinous matter in yellow pine in its natural state does not seem to check the growth of this fungus.

Agaricus campanella Batsch. was found on white cedar, *Chamœcyparis sphœroidea* Spack. fruiting from May to October. White Oak, *Quercus alba* L. frequently showed *Polyporus applanatus* Fr. in fruit, while *Polyporus versicolor* Fr. was very abundant. The absence of fungi in fruit upon ties of chestnut, *Castanea vulgaris* var. *Americana* A. D. C. was as striking as its frequency was on other woods. It is a well-known fact that chestnut ties last longer where the ground is damp, than where it is dry. It will be important to observe next year whether the excessive rain of this season has retarded or increased the usual rate of decay in ties of chestnut. One fact is established now; that the wood has been softened by the rain and the abrasion under the rails increased. On the railroad bridges the fungus *Lenzites sepiaria* Fr. has been abundant and destructive. Under the station platforms and the planking of the walks the development of mycelium, generally without fruiting, has been more abundant than usual. It has not, however, set men to thinking as it should, and the replanking has been done as of old, that is, in the best manner to promote the growth of a new crop of fungi to destroy the planks in a year or two. The season has been so favorable to the growth of mycelium that unseasoned timbers, used for the construction of freight cars, though dressed and framed, but closely piled in the shop one or two weeks, awaiting erection, would show traces of a developing mycelium. The strength of the pieces would not be impaired in so short a time, and little notice would be taken of the presence of the mycelium. If the timber finally seasons the mycelium becomes inert and will not revive till moisture reaches it. This would again start decay. If the unseasoned wood is painted and the moisture retained, the mycelium will continue to grow, causing partial or complete decay in the wood. This was clearly shown in the examination of several hundred freight cars undergoing repairs. Internal growth of fungi had taken place in heavy timbers which were thereby weakened and so quickly failed in service. A general impression prevails that timbers only need protection from external decay. Careful microscopical study reveals the fact that nearly every stick of timber contains in the crevices or on the surface a sufficient number of spores or traces of mycelium to induce decay when painted, unless the wood is well seasoned or properly treated. In New York city, timbers have been put in houses and other buildings and covered with tar or tarred paper, which caused their decay in three to four years. Notably, an apartment house was so badly injured by the development of fungi in the large timbers covered by tarred paper, that it had to be taken down in the fourth year of its use. Buildings eight to eleven stories high, in which every floor will be heated to seventy degrees or more in the winter, furnish a temperature sufficient for the growth of the most destructive fungi for the entire year. Unless the timbers are seasoned or properly treated, the fungi will grow and cause the decay of the wood. These fungi have so long been considered the accompaniment of the decay of the wood, instead of the *cause* thereof, that by the majority of the users of wood the true functions of the fungi are not understood.

In view of the fact that the State finds it necessary to take active measures to preserve our rapidly decreasing forests, it seems to me it might with propriety take active measures to call attention to the destruction caused by fungi in timber and so check what is now a great and unnecessary waste. Many of the means of doing this are simple and inexpensive, as stated in my letter of December 5, 1887.

As an illustration of simple and effective measures, I will give an example: When I was chief engineer of the Valley Railway of Ohio, I built some extensive trestles. This was in 1873. Before doing so I examined a number of trestles near Cleveland, Ohio, built of 10 by 12 or 12 by 12 timbers, the life of which did not exceed seven or eight years. In examining them I found that while the large timbers were sound upon the outside, internally they were all decayed. The small timbers, 6 by 8, used for braces and of the same kind of wood, were sound. *The small size enabled them to season in the structure.* This was an important fact, so I made all of my timbers small, using more of them to give the proper factor of safety. One of those trestles is in use now, 1889. In this case one of the three essentials requisite for the growth of fungi was eliminated, namely, the moisture in the interior. Decay could not, therefore, take place. The first step to be taken in this important matter has already been, in great measure, done by you, namely, the collection of specimens and the classification of the species of fungi. This, supplemented by a series of specimens showing how the wood is destroyed, would form the basis of one of the most important and economic departments of the State Museum. The second step would be the dissemination of this knowledge to the railroad companies and other consumers of wood.

Yours truly.

P. H. DUDLEY.

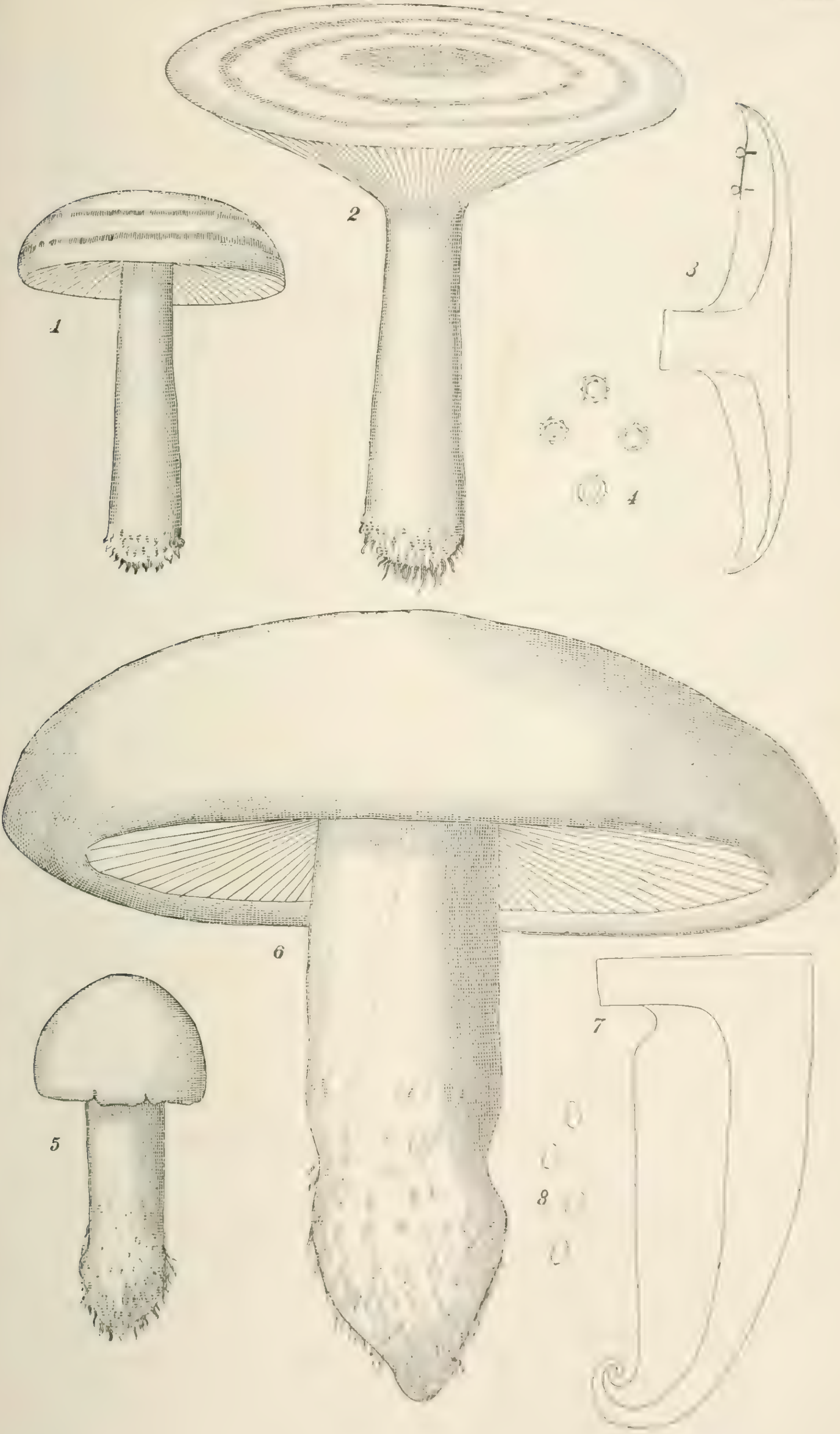
EXPLANATION OF PLATE 1.

Lactarius mutabilis, *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and upper part of its stem.
Fig. 4. Four spores x 400.

Tricholoma grave, *Peck.*

Fig. 5. An immature plant.
Fig. 6. A mature plant.
Fig. 7. Vertical section of one-half a pileus.
Fig. 8. Four spores x 400.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EXPLANATION OF PLATE 2.

Cortinarius annulatus, *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and upper part of its stem.
Fig. 4. Four spores x 400.

Russula brevipes, *Peck.*

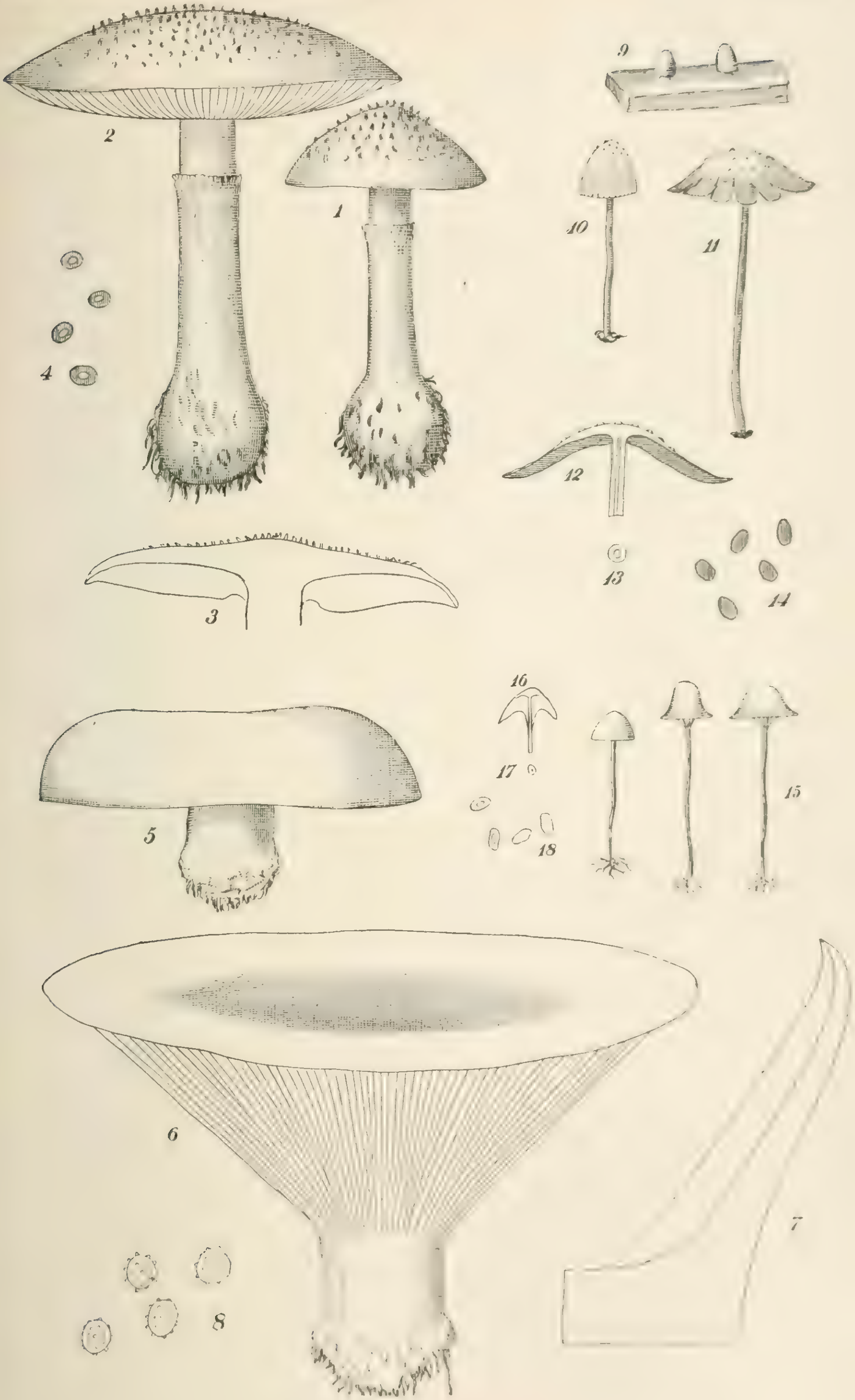
Fig. 5. An immature plant.
Fig. 6. A mature plant.
Fig. 7. Vertical section of half a pileus.
Fig. 8. Four spores x 400.

Coprinus brassicæ, *Peck.*

Fig. 9. Fragment of stem bearing two very young plants.
Fig. 10. A plant with the pileus unexpanded.
Fig. 11. A plant with the pileus expanded.
Fig. 12. Vertical section of a pileus and upper part of its stem enlarged.
Fig. 13. Transverse section of a stem enlarged.
Fig. 14. Five spores x 400.

Marasmius albiceps, *Peck.*

Fig. 15. Three plants showing different forms of the pileus.
Fig. 16. Vertical section of a pileus and upper part of its stem.
Fig. 17. Transverse section of stem.
Fig. 18. Four spores x 400.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EXPLANATION OF PLATE 3.

COMATRICHA LONGA, *Peck.*

Fig. 1. Piece of wood bearing a tuft of the plants.
Fig. 2. Upper part of a columella and capillitium enlarged.
Fig. 3. Lower part of a stem and fragment of hypothallus enlarged.
Fig. 4. Small fragment of the columella and capillitum x 400.
Fig. 5. Four spores x 400.

COMATRICHA SUBCÆSPITOSA, *Peck.*

Fig. 6. Piece of wood bearing four clusters of the plants.
Fig. 7. A plant after its spores have fallen, enlarged.
Fig. 8. Small fragment of the capillitium x 400.
Fig. 9. Four spores x 400.

STACHYBOTRYS ELONGATA, *Peck.*

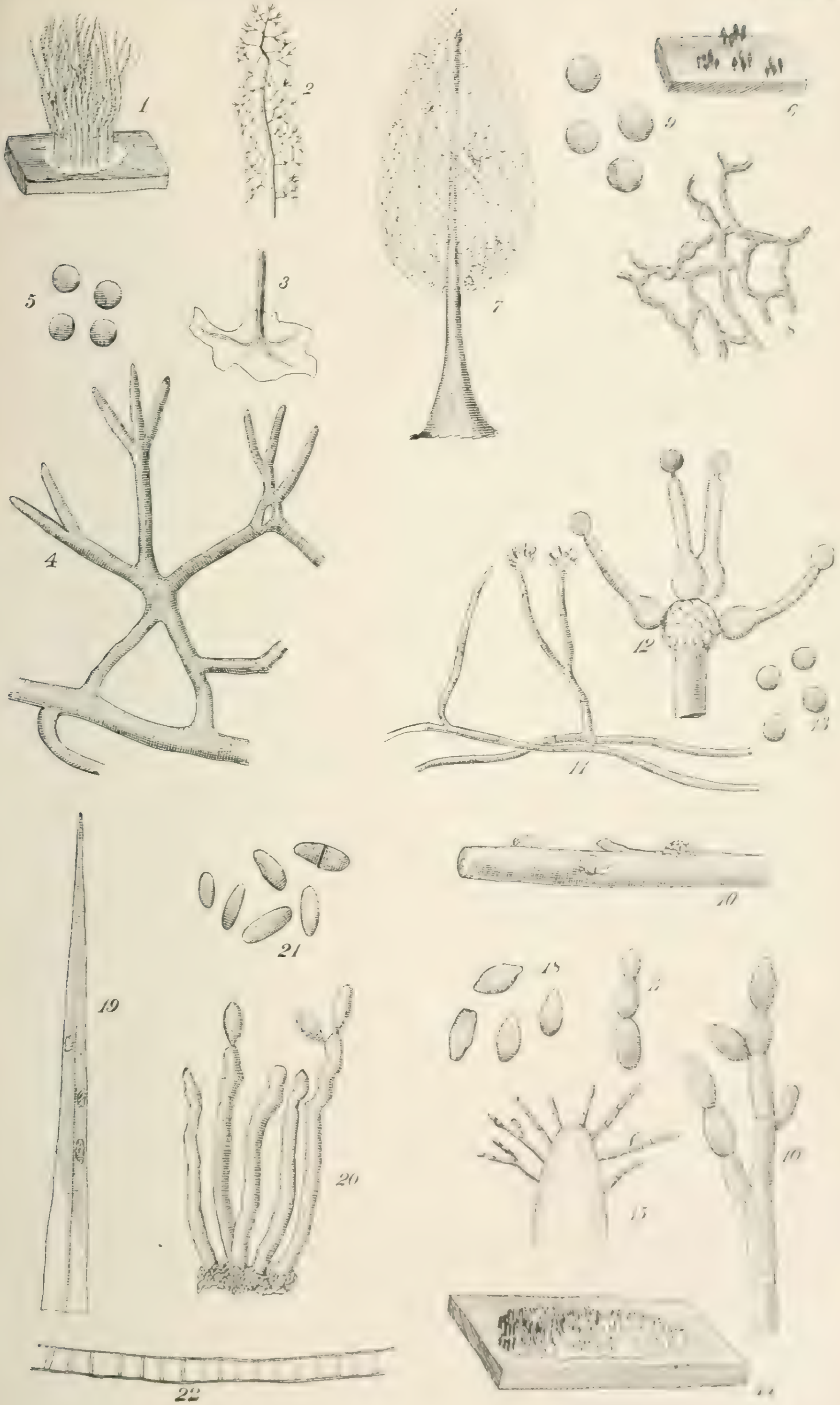
Fig. 10. Piece of branch bearing three tufts of the plants.
Fig. 11. Fragments of hyphæ, one bearing two heads of spores, enlarged.
Fig. 12. Apex of a fertile hypha partly denuded, four sporophores with their spores remaining x 400.
Fig. 13. Four spores x 400.

DEMATIUM PARASITICUM, *Peck.*

Fig. 14. Piece of wood bearing the Hydnum, a part of whose aculei are blackened by the parasite.
Fig. 15. An aculeus with eight hyphæ of the parasite, enlarged.
Fig. 16. A hypha bearing five spores x 400.
Fig. 17. A chain of three spores x 400.
Fig. 18. Four spores x 400.

FUSICLADIUM DESTRUENS, *Peck.*

Fig. 19. Upper part of a leaf bearing three clusters of the fungus.
Fig. 20. Five hyphæ, two of them bearing spores x 400.
Fig. 21. Six spores x 400.
Fig. 22. A fragment of mycelium x 400.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EXPLANATION OF PLATE 4.

Underwoodia columnaris, *Peck.*

Fig. 1. A mature plant.
Fig. 2 Transverse section of a plant.
Fig. 3. A paraphysis and an ascus with its spores x 400.
Fig. 4. Three spores x 400.

Hæmatomyces faginea, *Peck.*

Fig. 5. Piece of wood bearing the fungus.
Fig. 6. A paraphysis and an ascus with its spores x 400.
Fig. 7. Five spores x 400.

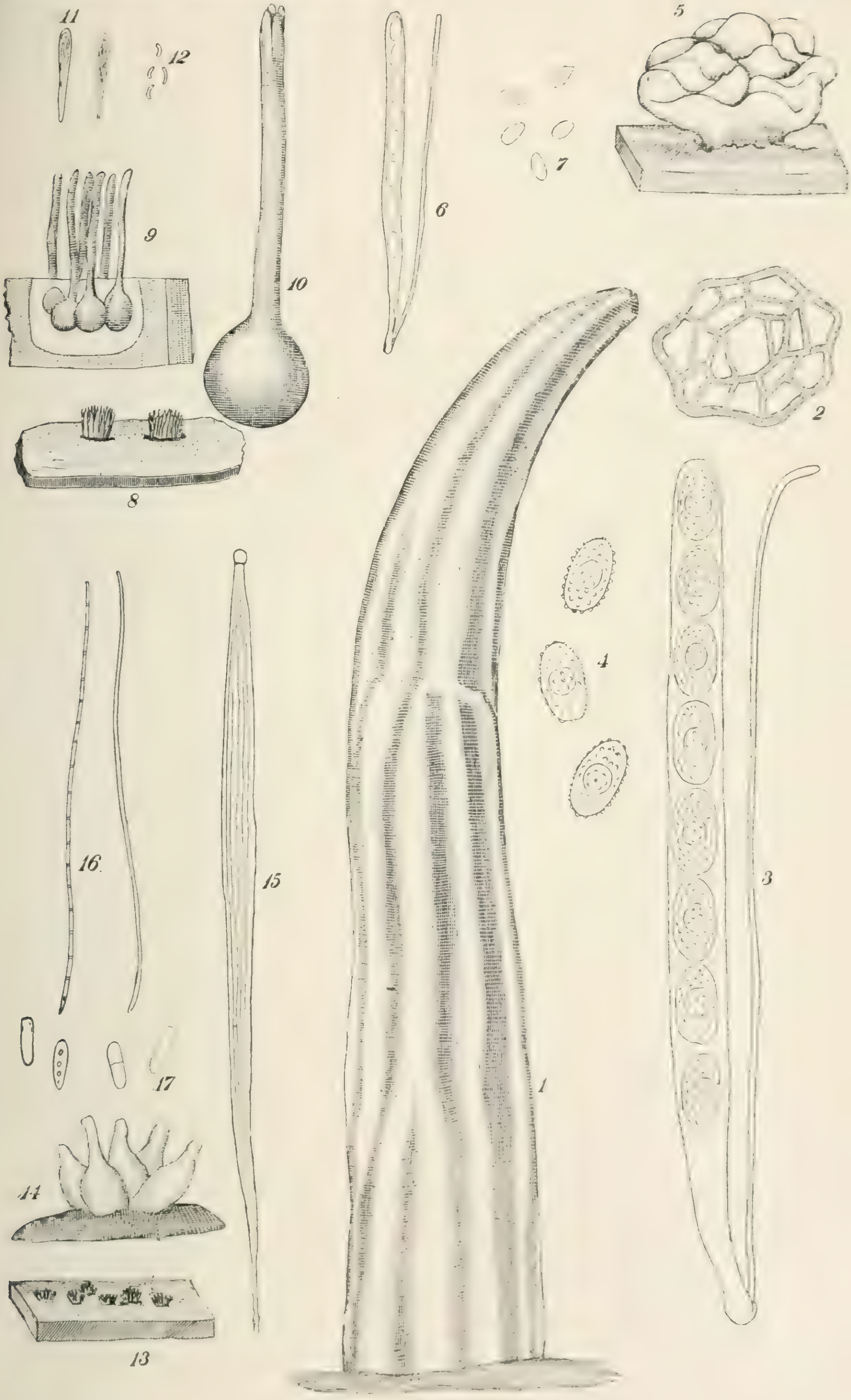
Eutypella longirostris, *Peck.*

Fig. 8. Piece of bark bearing two clusters of the fungus.
Fig. 9. Vertical section through a cluster, enlarged.
Fig. 10. A perithecium and its ostiolum, enlarged.
Fig. 11. Two asci with their spores x 400.
Fig. 12. Four spores x 400.

Barya parasitica *Fckl.* var. cæspitosa *Peck.*

Fig. 13. Piece of wood bearing six clusters of the fungus.
Fig. 14. A cluster of five perithecia, enlarged.
Fig. 15. An ascus with its spores x 400.
Fig. 16. Two spores x 400.
Fig. 17. Four conidia x 400.

FUNGI.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[From the 44th Report of the New York State Museum of Natural History.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

STATE OF NEW YORK.

Made to the Regents of the University, Pursuant to
Chapter 355 of the Laws of 1883.

By CHARLES H. PECK.

ALBANY:
JAMES B. LYON, STATE PRINTER.
1891.

STATE OF NEW YORK.

No. 77.

IN SENATE,

JANUARY 31, 1891.

ANNUAL REPORT

OF THE

STATE BOTANIST.

OFFICE OF THE STATE BOTANIST,
ALBANY, *January* 31, 1891.

To the Honorable the Regents of the University of the State of New York:

I have the honor to present to you my annual report for the year 1890.

Very respectfully.
CHARLES H. PECK.

REPORT.

To the Regents of the University of the State of New York:

GENTLEMEN.— I have the honor of communicating to you the following report:

Specimens of plants for the State Herbarium have been collected and prepared by the Botanist during the past year in the counties of Albany, Columbia, Cattaraugus, Dutchess, Essex, Greene, Hamilton, Oneida, Oswego, Putnam, Rensselaer, Steuben and Warren.

Specimens contributed by correspondents have been collected in the counties of Dutchess, Onondaga, Ontario, Orleans, Oswego, St. Lawrence and Westchester.

Specimens of 269 species of plants have been added to the Herbarium, of which 254 were collected by the Botanist and 15 were contributed. Of the former 72 are new to the Herbarium, of the latter 11. The number of species represented in the Herbarium has, therefore, been increased by 83. Of the remaining 186 species, the specimens represent forms or varieties not before represented or not well shown, or are specimens intended to accompany the trunk sections now being made of the trees of the State. Among the species not before represented in the Herbarium are 36 species of fungi considered new to science and described as such in another part of this report.. A list of the species of which specimens have been added to the Herbarium is marked A.

It seems desirable that the examples of trunk sections of the trees of the State, now being collected, should be accompanied by specimens of a branch or branches bearing the leaves, flowers and fruit. These, when properly labeled, mounted and placed with their respective wood sections, will make the illustration of the character of the tree much more complete and will afford a material aid to the student and the public in acquiring a familiar knowledge of the trees of the State and their names. Specimens have been collected representing 26 species of our trees. The names of these constitute the last 26 names in the list marked A.

Specimens of plants have been contributed by 22 contributors. Among these contributions are many extra limital species not included in the foregoing enumeration. A list of the contributors and of their respective contributions is marked B.

The record of species not before reported, together with their respective localities, habitats, and time of collection, also remarks concerning them and descriptions of new species, is marked C.

Remarks concerning species previously reported, a record of new localities of rare plants and descriptions of peculiar forms or varieties are contained in a subdivision marked D.

The genus Tricholoma is a large one, numbering, according to Sylloge Fungorum, 187 species. It is at present represented in this State by 48 species. Some of these are variable in size and color, and others are so similar to each other in general appearance that they are not identified without difficulty. A collation and revision of the descriptions of our New York species and a systematic arrangement of them has seemed desirable. This I have attempted to do, following the plan previously adopted in reference to several other genera of Agaricini. Synoptical tables of the different groups of species have been prepared to facilitate the tracing of the species, the descriptions have been revised and in many cases made more complete, and remarks have been added to some of these for the purpose of pointing out more clearly the distinguishing characters. It is believed that these will in nearly all cases enable the student to identify the species with rapidity and accuracy. This monograph of the New York species of Tricholoma is marked E.

Mary E. Banning, of Baltimore, Maryland, has for several years been engaged in studying the fleshy fungi of Maryland. Of most of them she has made drawings of the living plant and written descriptions of the species, to which in many cases remarks concerning her own observations of their habits, peculiarities and edible qualities have been added. The figures are beautifully painted by hand in water colors. They are natural size, life-like in expression and accurate in detail. They are on sheets 12 by 15 inches, thus permitting a full size illustration of even the large species. Each plate is devoted to a single species or variety. Generally both the young and the mature plant have been figured and a vertical section of a plant. The specimen has been placed in such positions that both the upper and lower surfaces of the pileus may be seen. Most of the species figured belong to the Hymenomycetes and Gasteromycetes. The whole number of species recorded in her list is 179. Of these, 151 have been illustrated on 175 plates, two or more plates being in some instances devoted to one species in order to show its different varieties. Of the figured species, 14 are described as new. These plates and their accompanying manuscript descriptions have been bound in one large volume with manuscript dedication, preface and index. This volume is one of much value and merit, and though it has evidently cost its author an immense amount of labor and study she has most generously presented it to the New York State Museum, in order that, as she says, it may be kept where it will be the most useful, thereby acknowledging by implication the importance of this institution as a repository and source of mycological information. As a mark of appreciation of this munificent gift it has seemed to me most fitting that this list of Maryland fungi and the descriptions of the new species should be transcribed for publication in this report that they may in this way be made still more accessible to the mycological student and the public. The list with the descriptions of new species is marked F.

I have from time to time recorded in previous reports examples of herbs and shrubs coming under my observation and illustrating the general principle that feeble, starved or unthrifty plants are more liable to the injurious attacks of parasitic fungi than other plants of the same species growing under more favorable circumstances and possessing more vigor. I am able now to cite an illustration of this principle in the attacks of parasitic fungi on trees. Many small spruce trees are growing on the marsh just north of Kasoag, Oswego county. These have a starved, unthrifty appearance. Their growth is very slow and their leaves as a rule are scarcely more than half as long as those of vigorous healthy spruces. Their feeble condition is manifestly due to the character of the soil in which they grow. It is low, wet, undrained and peaty. There is probably a scarcity of the necessary mineral constituents, and the roots of the trees are too much of the time immersed in standing water. In the midst of the marsh, but on higher and therefore better drained land, other spruces grow. These trees are larger, though probably not older, and they have a more vigorous and healthy appearance. Their leaves are of the usual size and color. So far as could be ascertained they are subject to the same conditions, soil excepted, as those that grow in the lower marsh land around them. In July, when I visited this locality, the foliage of the trees in the marsh land was much discolored and badly affected by a parasitic fungus, *Peridermium decolorans*. There was scarcely a tree that had not been invaded by it. At the same time the more vigorous spruces on the higher land were wholly free from it. The unavoidable conclusion is that their better health and greater vigor afforded them protection against this parasite. Among the noteworthy additions to our State flora may be mentioned a remarkable and very ornamental rarity of the common polypod fern. It is not recorded in Eaton's Ferns of North America, and so far as known it has not before been found in this country. Its botanical name is *Polypodium vulgare* L. var. *cristatum*, Lowe. Because of its singular character and its rarity I have given a figure and a more full account of it in its appropriate place in this report.

A new fungus of special interest, because of its peculiar habitat, has also been brought to light. It is a species of mold which I have called *Aspergillus aviarius*. It was found inside the body of a canary bird, the death of which it apparently caused. It helps to illustrate the fact that there is scarcely a place in which or a substance on which fungi of some sort may not grow. A full description of this species has been given in another place.

Very respectfully

CHAS. H. PECK

ALBANY, *November* 29, 1890

A

PLANTS ADDED TO THE HERBARIUM

New to the Herbarium

Ranunculus circinatus *Sibth.*
Lychnis Floscuculi *L.*
Spiræa sorbifolia *L.*
Rosa cinnamomea *L.*
Prunus Persica *L.*
Pyrus Aucuparia *Gœrt.*
Epilobium glandulosum *Lehm.*
Digitalis purpurea *L.*
Clintonia umbellata *Torr.*
Buxbaumia indusiata *Brid.*
Lejeunia calcarea *Lib.*
Frullania dilatata *Nees.*
Armillaria viscidipes *Pk.*
Tricholoma grande *Pk.*
T. sordidum *Fr.*
Clitocybe rivulosa *Pers.*
C. fuscipes *Pk.*
Collybia expallens *Pk.*
Mycena pseudopura *Cke.*
Omphalia corticola *Pk.*
Pleurotus pubescens *Pk.*
P. campanulatus *Pk.*
Flammula squalida *Pk.*
Pluteolus reticulatus *Pers.*
Crepidotus distans *Pk.*
Cortinarius albidus *Pk.*
Hygrophorus penarius *Fr.*
Coprinus picaceus *Fr.*
Polyporus annosus, *Fr.*
Dædalea sulphurella *Pk.*
D. extensa *Pk.*
Hydnum caput-ursi *Fr.*
H. arachnoideum *Pk.*
Odontia tenuis *Pk.*
Mucronella minutissima *Pk.*
Thelephora odorifera *Pk.*
Porothelium fimbriatum *Fr.*
Cyphella arachnoidea *Pk.*
Geaster rufescens *Pers.*
Phyllosticta Ludwigiæ *Pk.*
Phoma sordida *Sacc.*
Dothiorella Celtidis *Pk.*
Sphæropsis Ellisii *Sacc.*
S. rubicola *C. & E.*
Diplodia Liriodendri *Pk.*
D. multicarpa *Pk.*
Hendersonia epileuca *B. & C.*
Septoria Pteridis *Pk.*
Melanconium zonatum *E. & E.*
Septomyxa Carpini *Pk.*
Pestalozzia lignicola *Cke.*
Puccinia Spergulæ *DC.*
Doassansia Sagittariæ *Fisch.*
Aspergillus aviarius *Pk.*
Sporotrichum Lecanii *Pk.*
Diplosporium breve *Pk.*
Didymaria Ungeri *Cd.*
Ramularia destruens *Pk.*
R. Junci *Pk.*
R. graminicola *Pk.*
R. Heraclei *Sacc.*
Cercosporella Veratri *Pk.*
Bispora effusa *Pk.*
Cladosporium entoxylinum *Cd.*
Septonema episphæricum *Pk.*
Coniothecium effusum *Cd.*
Epicoccum vulgare *Cd.*
E. diversisporum *Preuss.*
Valsa microstoma *Fr.*
V. coöperta *Cke.*
Eutypella cerviculata *Sacc.*
Diaporthe binoculata *Sacc.*
D. tuberculosa *Sacc.*
D. rostellata *Nitsch.*
D. Americana *Speg.*
Massaria epileuca *B. & C.*
Caryospora minor *Pk.*
Metasphæria nuda *Pk.*
Pleospora Asparagi *Reb.*
Lophiostoma vagans *Fab.*
Stictis minuscula *Karst.*
Pseudopeziza Pyri *Pk.*
Saccharomyces Betulæ *Pk. & Pat.*

Not new to the Herbarium

Ranunculus sceleratus L.
R. ambigens *Wats.*
Thalictrum purpurascens *L.*
Cimicifuga racemosa *Nutt.*
Nymphæa odorata *Ait.*
Corydalis flavula *DC.*
Dicentra cucullaria *DC.*
Sanguinaria Canadensis *L.*
Viola sagittata *Ait.*
Brassica campestris *L.*
Raphanus sativus *L.*
Lechea minor *L.*
Stellaria media *Sm.*
Lychnis vespertina *Sibth.*
Linum Virginianum *L.*
Rubus villosus *Ait.*
R. hispidus *L.*
R. triflorus *Rich.*
Potentilla tridentata *Ait.*
Spiræa salicifolia *L.*
Nesæa verticillata *H. B. K.*
Œnothera pumila *L.*
Sedum ternatum *Mx.*
Heuchera Americana *L.*
Cicuta maculata *L.*
C. bulbifera *L.*
Angelica hirsuta *L.*
Aralia racemosa *L.*
Galium triflorum *Mx.*
Viburnum pauciflorum *Pyle.*
Symphoricarpus racemosus *Mx.*
Solidago sempervirens *L.*
S. nemoralis *Ait.*
S. arguta *Ait.*
Aster macrophyllus *L.*
A. Novæ-Angliæ *L.*
A. undulatus *L.*
A. sagittifolius *Willd.*
A. multiflorus *Ait.*
A. paniculatus *Lam.*
A. Novi-Belgii *L.*
A. prenanthoides *Muhl.*
A. vimineus *Lam.*
Senecio vulgaris *L.*
Erigeron Canadensis *L.*
Cacalia suaveolens *L.*
C. atriplicifolia *L.*
Antennaria plantaginifolia *Hook.*
Prenanthes serpentaria *Pursh.*
Rudbeckia triloba *L.*
Lobelia spicata *Lam.*
Plantago lanceolata *L.*
Verbascum Blattaria *L.*
V. Lychnitis *L.*
Gerardia tenuifolia *Vahl.*
Stachys aspera *Mx.*
Monarda didyma *L.*
Pycnanthemum lanceolatum *Pursh.*
Brunella vulgaris *L.*
Myosotis laxa *Lehm.*
Onosmodium Virginianum *DC*
O. Carolinianum *DC.*
Phlox maculata *L.*
Gentiana linearis *Frœl.*
Asclepias phytolaccoides *Pursh.*
Vincetoxicum nigrum *Mœnch.*
Lycium vulgare *Dunal.*
Rumex obtusifolius *L.*
R. crispus *L.*
Polygonum hydropiperoides *Mx.*
Fraxinus pubescens *Lam.*
Calla palustris *L.*
Typha latifolia *L.*
Alisma Plantago *L.*
Smilax herbacea *L.*
Epipactis Helleborine *Crantz.*
Calopogon pulchellus *R. Br.*
Chamælirium Carolinianum *Willd.*
Habenaria psycodes *Gray.*
Juncus effusus *L.*
J. filiformis *L.*
J. acuminatus *Mx.*
J. marginatus *Rostk.*
Scirpus Smithii *Gray.*
S. atrovirens *Muhl.*
Eriophorum gracile *Koch.*
E. Virginicum *L.*
Eleocharis intermedia *Schultes.*
Carex folliculata *L.*
C. monile *Tuck.*
C. retrorsa *Schw.*
C. crinita *Lam.*
C. triceps *Mx.*
C. flava *L.*
C. laxiflora *Lam.*
C. Tuckermani *Dew.*
C. vulpinoidea *Mx.*
C. vitilis *Fr.*
C. straminea *Willd.*
C. lupulina *Muhl.*
C. utriculata *Boott.*
Phalaris arundinacea *L.*

Bromus secalinus *L.*
B. ciliatus *L.*
Asprella Hystrix *Willd.*
Polypodium vulgare *L.*
Equisetum hyemale *L.*
Riccia fluitans, *L.*
Amanita rubescens *Fr.*
Lepiota rhacodes *Vitt.*
Tricholoma Peckii *Howe.*
T. terreum *Schœff.*
T. album *Schœff.*
T. chrysenteroides *Pk.*
Clitocybe cyathiformis *Fr.*
Collybia velutipes *Curt.*
C. Familia *Pk.*
Mycena pterigena *Fr.*
Pleurotus applicatus *Batsch.*
P. sulphureoides *Pk.*
P. striatulus *Fr.*
Entoloma cyaneum *Pk.*
Pholiota discolor *Pk.*
Hebeloma crustuliniforme *Bull.*
Flammula spumosa *Fr.*
Crepidotus dorsalis *Pk.*
Agaricus silvicola *Vitt.*
Stropharia squamosa *Fr.*
Psilocybe spadicea *Fr.*
Cortinarius collinitus *Fr.*
Hygrophorus splendens *Pk.*
H. pratensis *Fr.*
Lactarius atroviridis *Pk.*
Russula variata *Banning.*
Cantharellus lutescens *Fr.*
Polystictus conchifer *Schw.*
Poria sanguinolenta *Fr.*
Dædalea unicolor *Fr.*
Irpex Tulipiferæ *Schw.*
Craterellus clavatus *Fr.*
Stereum bicolor *Fr.*
S. ochraceoflavum *Schw.*
Corticium Oakesii *B. & C.*
Coniophora puteana *Fr.*
Tremella mesenterica *Retz.*
Comatricha Friesiana *Rost.*
Enerthenema papillatum *Rost.*
Doassansia Alismatis *Corn.*
Cercospora varia *Pk.*
Ramularia lineola *Pk.*
R. variabilis *Fckl.*
Zygodesmus fuscus *Cd.*
Bactridium flavum *K. & S.*
Glœosporium lagenarium *Pass.*
Tuberculina persicina *Sacc.*
Underwoodia columnaris *Pk.*
Vibrissea truncorum *Fr.*
Peziza chlora *Schw.*
Propolis faginea *Karst.*
Melogramma vagans *DeNot.*
Magnolia acuminata *L.*
Acer rubrum *L.*
Amelanchier Canadensis *T. & G.*
Ulmus fulva *Mx.*
U. Americana *L.*
Celtis occidentalis *L.*
Morus rubra *L.*
Platanus occidentalis *L.*
Nyssa sylvatica *Marsh.*
Fraxinus pubescens *Lam.*
Carya amara *Nutt.*
Betula lenta *L.*
B. lutea *Mx.*
B. populifolia *Ait.*
B. papyrifera *Marsh.*
B. nigra *L.*
Quercus alba *L.*
Q. macrocarpa *Mx.*
Q. rubra *L.*
Q. coccinea *Wang.*
Q. palustris *DuRoi.*
Fagus ferruginea *Ait.*
Populus monilifera *Ait.*
Pinus resinosa *Ait.*
Thuya occidentalis *L.*
Juniperus Virginiana *L.*

(B)

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs. E. C. Anthony, Gouverneur, N. Y.

Geaster rufescens *Pers.*
Tulostoma mammosum *Fr.*

Mrs. L. L. Goodrich, Syracuse, N. Y.

Epipactis Helleborine *Crantz.*
Selaginella apus *Spring.*

Mrs. E. B. Smith, Coeymans, N. Y.

Xylaria Hypoxylon var. pedata *Fr.*

Mrs. W. H. Fitch, Norwich, N. Y.

Aconitum Noveboracense *Gr.*
Liatris spicata *Willd.*
Cacalia suaveolens *L.*
Erythronium albidum *Nutt.*

Miss P. A. McCabe. White Plains, N. Y.

Caucalis Anthriscus *Huds.*
Pentstemon lævigatus *Soland.*

Mrs. E. G. Britton, New York, N. Y.

Andræa petrophila *Ehrh.*
Georgia geniculata *Girg.*
G. pellucida *Rabh.*
Fissidens rufulus *B. & S.*
F. grandifrons *Brid.*
F. Hallianus *Mitt.*
Dicranum strictum *Schleich.*
D. Starkii *W. & M.*
D. fuscescens *Turn.*
Dicranella crispa *Schp.*
D. secunda *Lindb.*
Blindia acuta *B. & S.*
Hedwigia ciliata *Ehrh.*
Orthotrichum cupulatum *Hoffm.*
Leucobryum vulgare *Hampe.*
Grimmia heterosticha *C. & M.*
G. canescens *C. & M.*
G. patens *B. & S.*
G. hypnoides *Lindb.*
G. torquata *Hornsch.*
G. apocarpa *Hedw.*
Braunia Californica *Lesq.*
Anœctangium Lapponicum *Hedw.*
A. Mougeottii *Lindb.*
Swartzia montana *Lindb.*
Timmia austriaca *Hedw.*
Scouleria aquatica *Hook.*
Catharinea Selwyni *Britton.*
Bartramia Menziesii *Turn.*
B. Œderiana *Sw.*
B. pomiformis *Hedw.*
Philonotis fontana *Brid.*
Neckera pennata *Hedw.*
Climacium Americanum *Brid.*
C. dendroides *W. & M.*
Hypnum riparium *L.*
H. proliferum *L.*
H. crista-castrensis *L.*
H. megaptilum *Sull.*
Alsia abietina *Sull.*
Thamnium Bigelovii *Sull.*
Plagiothecium latebricola *Lindb.*
P. turfaceum *Lindb.*
P. Mullerianum, *Schp.*
P. elegans *Schp.*
Rhytidium robustum *Hook.*
Hylocomium triquetrum *B. & S.*
H. squarrosum *B. & S.*
H. loreum *B. & S.*
H. parietinum *Lindb.*

Miss M. E. Banning, Baltimore, Md.

Lycoperdon cælatum *Bull.*

W. M. Beauchamp, Baldwinsville, N. Y.

Nicotiana rustica *L.*

Smith E. Jelliffe, M. D., Brooklyn, N. Y.

Atrichum crispum *James.*
Neckera oligocarpa *B. & S.*
Homalia trichomanoides *B. & S.*
Asplenium montanum *Willd.*

Thomas Taylor, M. D., Washington, D. C.

Rhizopogon rubes. v. Vittadini *Tul.*
Calostoma Berkeleyi *Massee.*

W. W. Rowlee, Ithaca, N. Y.

Ranunculus circinatus *Sibth.*
Spiræa sorbifolia *L.*

Moses Craig, Ithaca, N. Y.

Æcidium Euphorbiæ *Gmelin.*
Æ. gnaphaliatum *Schw.*
Æ. Caladii *Schw.*
Æ. Iridis *Ger.*
Puccinia Menthæ *Pers.*
P. coronata *Cd.*
P. Podophylli *Schw.*

C. L. Shear, Stockbridge, Mass.

Lychnis Floscuculi *L.*

S. C. Bradt, Albany, N. Y.

Æcidium Clematidis *DC.*

Arthur Claghorn, New Harbor, Newfld.

Empetrum nigrum *L.*

Charles A. Coons, Valatie, N. Y.

Polypodium vulgare *L.*, var. cristata *Lowe.*

Rev. F. D. Kelsey, Helena, Mont.

Omphalodes Howardi *Gr.*
Douglasia montana *Gr.*
Lithospermum angustifolium *Mx.*
Phragmidium subcorticium *Wint.*
Puccinia Grindeliæ *Pk.*
P. Tanaceti *DC.*
P. flosculosorum *Rœhl.*
P. Phragmitis *Korn.*
Uromyces Spragueæ *Hark.*
U. Trifolii *Lev.*
Æcidium Glaucis *D. & M.*
Æ. Plantaginis *Ces.*
Æ. gaurinum *Pk.*
Melampsora Epilobii *Wint.*
Melampsorella Cerastii *Schr.*
Exidia glandulosa *Fr.*
Cucurbitaria Kelseyi *E. & E.*
Ramularia arnicalis *E. & E.*
Entyloma compositarum *Farl.*
Phoma Mamillariæ *Web.*
Asteroma ribicolum *E. & E.*
Dimerosporium Populi *E. & E.*
Valsa nivea *Fr.*
V. boreëlla *Karst.*
Uncinula adunca *Lev.*
Phyllactinia suffulta *Sacc.*
Erysiphe communis *Wallr.*
E. Cichoracearum *DC.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Pleurotus pubescens *Pk.*
Diplodia spiræicola *E. & E.*
Pestalozzia insidens *Zab.*
Melanconium zonatum *E. & E.*
Coniosporium Fairmani *Sacc.*
Cyphella Tiliæ *Cke.*
Tubulina cylindrica *Bull.*
Fenestella amorpha *E. & E.*
Cenangium rubiginellum *Sacc.*

L. M. Underwood, Syracuse, N. Y.

Corydalis flavula *DC.*
Riccia fluitans *L.*
R. lutescens *Schw.*
R. Donnellii *Aust.*
R. crystallina *L.*
Preissia hemisphærica *Cogn.*
Notothylas orbicularis *Sulliv.*
Lunularia vulgaris *Mich.*
Fimbriaria tenella *Nees.*
Thallocarpus Curtisii *Lindb.*
Aneura pinguis *Dum.*
A. pinnatifida *Nees.*
A. latifrons *Lindb.*
A. multifida *Dum.*
Pellia epiphylla *Nees.*
P. endivæfolia *Dum.*
Fossombronia Dumortieri *Lindb.*
Metzgeria cônjugata *Lindb.*
M. pubescens *Rad.*
Lejeunia calcarea *Lib.*
Lejeunia clypeata *Sulliv.*
Frullania Eboracense *Gott.*
F. Virginica *Lehm.*
F. Bolanderi *Aust.*
F. Oakesiana *Aust.*
F. dilatata *Nees.*
Radula spicata *Aust.*
R. tenax *Lindb.*
Porella Bolanderi *Aust.*
P. platyphylla *Lindb.*
P. navicularis *Lindb.*
Blepharostoma tricophylla *Dum.*
Ptilidium Californicum *Aust.*
Bazzania deflexa *Mart.*
Chiloscyphus polyanthos *Cd.*
Lophocolea heterophylla *Nees.*
L. Leibergii *Under.*
Odontoschisma Sphagni *Dum.*
Harpanthus scutatus *Spruce.*
Jungermannia setiformis *Ehrh.*

Jungermannia barbata *Schreb.*
J. minuta *Crantz.*
J. inflata *Huds.*
J. incisa *Schrad.*
J. exsecta *Schmidt.*
Cephalozia multiflora *Spruce.*
C. divaricata *Dum.*
C. bicuspidata *Dum.*
C. Virginiana *Spruce.*
Mylia Taylori *Gray.*
Diplophyllum albicans *Dum.*
Gymnomitrium concinnatum *Cd.*
Scapania undulata *N. & M.*
Scapania Bolanderi *Aust.*
S. glaucocephala *Aust.*
Nardia crenulata *Lindb.*
N. fossombronioides *Lindb.*
Marsupella emarginata *Dum.*
M. sphacelata *Dum.*
Sphærocarpus terrestris *Mich.*
S. Donnellii *Aust.*
Polyporus fuscocarneus *Pers.*
Thelephora odorifera *Pk.*
Peniophora unicolor *Pk.*
Underwoodia columnaris *Pk.*

J. Dearness, London, Can.

Phyllosticta Apocyni *Trel.*
P. variegata *E. & E.*
Ascochyta Thaspii *E. & E.*
Melasmia Galii *E. & E.*
Steganosporium cellulosum *Cd.*
S. pyriforme *Hoffm.*
Physoderma Menyanthis *DeBy.*
Puccinia microsperma *E. & E.*
Boletus spectabilis *Pk.*
Septoria Kalmiæ *C. & E.*
S. bacilligera *Wint.*
S. carnea *E. & E.*
S. Dearnessii *E. & E.*
Ramularia Solidaginis *E. & E.*
R. stolonifera *E. & E.*
Gnomonia fimbriata *Pers.*
Asterina rubicola *E. & E.*

S. M. Tracy, Agricultural College, Miss.

Uredo Fici *Cast.*
Phragmidium subcorticium *Wint.*
Puccinia Anthoxanthi *Fckl.*
P. solida *Schw.*
P. emaculata *Schw.*
P. fragilis *Tr. & G.*
P. Lobeliæ *Ger.*
P. Malvacearum *Mart.*
P. rubigovera *Wint.*
P. Smilacis *Schw.*
P. Sporoboli *Arth.*
Uromyces Trifolii *Lev.*
U. Spermococes *Cast.*
U. Dactylidis *Otth.*
U. solida *B. & C.*
U. appendiculatus *Lev.*
Ustilago Buchloes *E. & Tr.*
U. Syntherismæ *Schw.*
Cintractia Avenæ *E. & Tr.*
Sorosporium Everhartii *E. & G.*
Cronartium asclepiadeum *Fr.*
Melampsora Quercus *Schrœt.*
M. Gleditschiæ *E. & E.*
M. Hydrangeæ *Burrill.*
Æcidium Epilobii *DC.*
Peridermium orientale *Cke.*
Phyllosticta hortorum *Speg.*
Staganospora Cyperi *E. & Tr.*
Stigmina Platani *Fckl.*
Scolecotrichum graminis *Fckl.*
Helminthosporium fumosum *E.&M.*
H. Ravenelii *B. &C.*
Sphacelotheca hydropiperis *DeBy.*
Cercospora grisea *C. & E.*
Cercosporella persica *Sacc.*
Fusarium Celtidis *E. & Tr.*
Peronospora Halstedii *Farl.*
Stictis heliotricha *E. & E.*
Pseudopeziza Medicaginis *Lib.*
Erysiphe Liriodendri *Schw.*
Uncinula macrospora *Pk.*
U. polychæta *B. & C.*
Microsphæria quercina *Burrill.*
Acrospermum compressum *Tode.*
Ascomyces Quercus *Cke.*
Parodiella perisporioides *B. & C.*
Phyllachora Solidaginis *Schw.*

E. B. Southwick, New York, N. Y.

Aspergillus aviarius *Pk.*

(C)

SPECIES OF PLANTS NOT BEFORE REPORTED

Ranunculus circinatus *Sibth.*

Black creek, near Fulton, Oswego county. July. *W. W. Rowlee.*

Cardamine flexuosa *With.*

Cascadeville, Essex county. June. The plant here noted was formerly referred to *C. hirsuta* var. *silvatica*, but it differs so much from *C. hirsuta* that I am disposed to follow Withering, in considering it a distinct species.

Lychnis Floscuculi *L.*

Irvington, Westchester county. *C. L. Shear.* This is an introduced plant, and has probably escaped from cultivation.

Spiræa sorbifolia *L.*

Escaped from cultivation and established by roadsides and in a pasture near Fulton. July. *Rowlee.*

Rosa cinnamomea *L.*

Morehouseville, Hamilton county. July. This rose which has been introduced into this country and cultivated, is frequently found growing by roadsides or in adjoining fields. It often persists long after the houses, near which it was planted, have disappeared. It spreads somewhat by its roots, but probably does not spread by seed. The flowers are usually double.

Prunus Persica *L.*

Warsaw, Wyoming county; Turners, Orange county; Cold Spring, Putnam county. Also in Cayuga county. *W. R. Dudley.* In the three localities first mentioned the trees appear to have grown spontaneously, and were fruiting.

Pyrus Aucuparia *Gœrt.*

Schoharie; Delmar, Albany county, and Spencertown, Columbia county. Sometimes escaping from cultivation and growing wild in the borders of fields or woods.

Epilobium glandulosum *Lehm.*

Wet places, Schroon river, Essex county. August.

Epilobium adenocaulon *Haussk.*

Catskill mountains. In the Thirty-third Report this was reported as a form of *E. coloratum;* but it is now raised to specific rank.

Digitalis purpurea *L.*

Morehouseville. July. The foxglove is a highly ornamental plant, and sometimes escapes from cultivation and becomes established in fields and pastures. In the locality mentioned it was growing in a meadow and an adjoining pasture. About half the plants bore pure white flowers. The lower leaves of some of the plants were spotted by a parasitic fungus, *Ramularia variabilis.*

Buxbaumia indusiata *Brid.*

Decaying wood. Catskill mountains. October.

Lejeunea calcarea *Lib.*

Bark of cedar trees. Farmington, Ontario county. *L. M. Underwood.*

Frullania dilatata *Nees.*

Bark of trees. Marcellus, Onondaga county. *Underwood.*

Armillaria viscidipes *n. sp.*

(Plate 2, Figs. 1 to 3.)

Pileus fleshy, compact, convex or nearly plane, glabrous, whitish with a slight yellowish or reddish-yellow tint, flesh white, odor peculiar, penetrating, subalcaline; lamellæ narrow, crowded, sinuate or subdecurrent, whitish; stem equal, solid, viscid and slightly tinged with yellow below the narrow membranous annulus, whitish above; spores elliptical .0003 in. long .0002 broad.

Pileus 3 to 6 in. broad; stem 3 to 4 in. long, 6 to 12 lines thick.

In mixed woods. Rock City, Dutchess county. October.

This is the fourth species of Armillaria found in the State. It is a large, fine fungus, easily known by its white and yellowish hues, its crowded lamellæ, viscid stem and peculiar penetrating almost alcaline odor. The cuticle of the pileus is thin and soft to the touch, but it sometimes cracks longitudinally and is sometimes slightly adorned with innate fibrils. *A. dehiscens* is said to have a viscid stem, but it is also squamose and the pileus is yellowish ochraceous.

Tricholoma grande *n. sp.*

(Plate 3, figs. 5 to 8.)

Pileus thick, firm, at first hemispherical, then convex, often irregular, dry, squamulose, somewhat silky-fibrillose toward the margin which is at first involute, white, flesh grayish-white, taste farinaceous; lamellæ close, rounded behind, adnexed, white; stem stout, solid, fibrillose, at first tapering upward, then equal or but slightly thickened at the base, pure white; spores elliptical, .00035 to .00045 in. long, .00024 broad.

Pileus 4 to 5 in. broad; stem 2 to 4 in. long, 1 to 1.5 in. thick.

Among fallen leaves in woods. Carrollton, Cattaraugus county. September.

The plants are often cæspitose and then the pileus is more or less irregular and the lamellæ somewhat transversely lacerated. The species is related to *T. Columbetta* from which its larger size, constantly squamulose pileus, more cæspitose mode of growth, larger spores and farinaceous taste separate it. Its edible quality was tested but its flesh is not tender nor its flavor captivating even in young specimens.

The young margin is pure white and both it and the upper part of the stem are sometimes studded with drops of moisture. The squamules of the pileus are brownish.

Tricholoma sordidum *Fr.*

Manured ground. Menands, Albany county. May.

Clitocybe rivulosa *Pers.*

In woods. Morehouseville, Hamilton county. July.

Our specimens were rather deeply umbilicate, with narrow lamellæ. In other respects they agree with the description of this species. The abundant branching radicating strings of mycelium bind the earth in a mass at the base of the stem.

Clitocybe fuscipes *n. sp.*

Pileus thin, broadly convex or plane, umbilicate, glabrous, whitish and striatulate when moist, pure white when dry, odor and taste farinaceous; lamellæ nearly plane, subdistant, adnate or slightly decurrent, white; stem equal, glabrous or slightly mealy at the top, hollow, fuscous when moist, paler when dry; spores globose, .0002 to .00024 in. broad.

Pileus 4 to 8 lines broad; stem about 1 in. long.

Under pine trees. Carrollton. September.

Apparently allied to *C. pithyophila* but a much smaller plant with a farinaceous odor and a stem darker in color than the pileus or lamellæ. The stem often appears stout in proportion to the size of the pileus.

Collybia expallens *n. sp.*

Pileus thin, broadly convex, then plane, centrally depressed, glabrous, hygrophanous, watery-brownish and striatulate on the thin margin when moist, whitish when dry, flesh whitish when dry, odor farinaceous; lamellæ rather broad, subdistant, rounded behind, adnexed, whitish subcinereous or dingy-yellowish; stem short, hollow, equal or slightly thickened at the base, spores broadly elliptical, .0002 in. long, .00016 broad.

Pileus 1 to 2 in. broad; stem about 1 in. long, 2 lines thick.

Among fallen pine leaves in woods. Salamanca, Cattaraugas county. September.

The pileus is very much paler when dry than it is when moist. When fresh the stem is adorned with delicate fibrils or flocci, but these soon vanish or disappear with a touch. In drying, the moisture disappears from the disk first, the margin last. The farinaceous odor is very distinct. The attachment of the lamellæ easily distinguishes this plant from similar species of Clitocybe.

Mycena pseudopura *Cke.*

Woods. Salamanca. September.

Omphalia corticola *n. sp.*

(Plate 2, figs. 8 to 12.)

Pileus thin, submembranous, convex, becoming expanded and umbilicate, distantly striate, whitish or pale cinereous; lamellæ narrow, distant, at first arcuate and adnate, then decurrent, white; stem short, curved, sprinkled with mealy particles, at first whitish with a brown base, then wholly brown or whitish at the top only; spores elliptical, .0003 in. long, .00016 broad, generally uninucleate.

Pileus 2 to 4 lines broad; stem 4 to 6 lines long.

Bark of living oak trees, *Quercus alba*. Carrollton. September.

This species closely resembles *Mycena corticola*, from which it is separated by its paler pileus, narrower and at length decurrent lamellæ and elliptical spores. Its mode of growth is the same as in that species.

Pleurotus pubescens *n. sp.*

Pileus fleshy, convex, suborbicular, pubescent, yellowish; lamellæ broad, subdistant, rounded behind, sinuate, pallid tinged with red; stem short, firm, curved, eccentric, colored like the pileus; spores globose .0003 in. broad.

Pileus about 2 in. broad; stem scarcely 1 in. long.

Trunks of trees. Lyndonville. *C. E. Fairman.*

This is a species which in some respects approaches *P. Ruthæ*, but differs from it in having the lamellæ distinct behind, not anastomosing, and there are no red tints on the stem. The plant is said to be fragrant when fresh. I have seen it only in the dried state and, therefore, the description may not correspond exactly with the coloring of the fresh plant.

Pleurotus campanulatus *n. sp.*

(Plate 2, figs. 13 to 15.)

Pileus thin, subtenacious, campanulate, attached by the vertex, glabrous or sprinkled with a few grayish hairs, often plicate-striate on the margin, black; lamellæ few, distant, whitish; spores curved, .0003 to .00035 in. long, .00015 to .00016 broad.

Pileus 1 to 2 lines broad.

Dead branches of mulberry, *Morus rubra*. Saugerties. May.

This fungus resembles some forms of *P. striatulus*, but it is easily distinguished by its black color and curved spores. The vertex of the pileus is sometimes prolonged, forming a distinct stem.

Flammula squalida *n. sp.*

Pileus fleshy, convex or plane, firm, viscose, glabrous, dingy-yellowish or rufescent, flesh whitish, colored similar to the pileus under the separable pellicle; lamellæ rather broad, adnate, pallid, becoming brownish-ferruginous; stem slender, generally flexuous, hollow, fibrillose, subcartilaginous, pallid or brownish, pale-yellow at the top when young; spores brownish-ferruginous, .0003 in. long, .00016 broad.

Pileus 1 to 1.5 in. broad; stem 1.5 to 3 in. long, 1 to 2 lines thick.

In bushy and swampy places. Carrollton and Sandlake. September.

This species is closely allied to *F. spumosa*, of which, perhaps, some may prefer to consider it a variety. But having observed it several times in different localities and always finding it constant in its character and readily distinguishable, it has seemed best to recognize it as a species. It is distinguished by its slender habit, more uniform color, subcartilaginous stem, darker spores and generally dingy appearance. It is often strongly cæspitose and is found especially among alder bushes in swamps.

Pluteolus reticulatus *Pers.*

Decayed wood of deciduous trees. Carrollton. September.

Crepidotus distans *n. sp.*

(Plate 2, figs. 4 to 7.)

Pileus membranous, convex, distantly sulcate-striate, minutely pubescent, tawny; lamellæ broad, ventricose, very distant, adnate, colored like the pileus; stem minute, eccentric, reddish-brown; spores elliptical, .0004 to .0005 in. long, .00025 to .0003 broad.

Pileus 2 to 4 lines broad; stem about 1 line long.

Bark of thorn tree, *Cratægus tomentosa.* Carrollton. September.

A small species, very rare and easily overlooked, but very distinct by its color, its pubescent pileus and very distant lamellæ.

Cortinarius albidus *n. sp.*

(Plate 3, figs. 1 to 4.)

Pileus fleshy, convex or nearly plane, viscid, white, sometimes slightly tinged with yellow, flesh white; lamellæ close, emarginate, at first whitish, then cinnamon color; stem equal, solid, white, with a depressed oblique submarginate bulb at the base, veil white; spores subelliptical, .0004 to .00045 in. long, .00024 broad.

Pileus 2 to 4 in. broad; stem 2 to 4 in. long, 4 to 8 lines thick.

Thin woods. Carrollton. September.

Related to *C. multiformis* from which it is separable by its color, which is entirely white except in the mature lamellæ, and by its peculiar oblique bulb. Its spores also are longer and of a different shape.

Hygrophorus penarius *Fr.*

Mixed woods. Voorheesville. October.

Our specimens differ slightly in color from the typical form. They are white slightly stained with yellow and they retain their color in drying. Some of them are very large, the pileus being five or six inches broad.

Coprinus picaceus *Fr.*

Decaying trunks or branches of trees in woods. Lyndonville. June. *Fairman.*

The form here referred to this species differs somewhat from the description of the type in being smaller, in having no bulb to the stem and in having smaller spores. It is probably the "smaller variety growing on rotten wood" noticed by Stevenson in his British Fungi. I have seen the true form of the species from Kansas. The New York plant seems to me to be worthy of distinctive designation, at least as a variety, and I call it

Var. *ebulbosus.* Plant smaller; stem destitute of a bulb; spores .0003 to .0004 in. long, .0002 broad.

Polyporus annosus *Fr.*

Decaying wood. Salamanca. September.

This is evidently a very rare species in our State.

Dædalea sulphurella *n. sp.*

Resupinate, effused or nodulose, pale sulphur yellow: pores short, labyrinthiform, the dissepiments often lacerated and irpiciform in the dry plant; pores subglobose or broadly elliptical, .0002 in. long.

Much decayed wood. Salamanca. September.

Mostly very irregular or nodulose, following the irregularities of the wood and encrusting mosses. It is of a beautiful pale yellow color when fresh, but it changes to a dull pallid hue when dry.

Dædalea extensa *n. sp.*

Resupinate, thick, coriaceous, often uneven or somewhat nodulose, the margin at first cottony and white, soon changing to brown, the subiculum slightly rufescent: pores large, unequal and labyrinthiform, in vertical places oblique, whitish: spores minute, oblong, .00024 to .0003 in. long, .0001 to .00012 broad.

Prostrate trunks of deciduous trees. Salamanca. September.

This forms patches two feet or more in length on the sides and lower surface of the trunk. It follows the inequalities of the surface, and in vertical places it becomes more or less nodulose or develops a thick obtuse margin, which is velvety-tomentose and at length dark-brown in color, but I have seen no reflexed margin. It is suggestive of resupinate forms of *Trametes mollis*, but differs from it in the character of the pores in the thicker subiculum and in the absence of any free margin.

Hydnum caput-ursi *Fr.*

Decaying birch wood, *Betula lutea*. Carrollton. September.

Hydnum arachnoideum *n. sp.*

Resupinate; subiculum effused, very thin, webby or cottony, white; aculei minute, short, conical, unequal, scattered or sometimes crowded, whitish; mycelium often forming slender branching white radicular strings that creep over or permeate the matrix: spores minute, globose, .00016 in. broad.

Much decayed wood of hemlock, *Tsuga Canadensis*. Salamanca. September.

It seems to be closely related to *H. Micheneri*, but separated from it by the conical aculei. In this species also they are sometimes crowned with one to four cilia. The specific name has reference to the character of the subiculum.

Odontia tenuis *n. sp.*

Effused, very thin, tender, dry, pallid, the margin not clearly fimbriate; verrucæ minute, scarcely visible to the naked eye, subglobose or oblong, scattered or crowded, sometimes entire; mycelium sometimes collected into dingy-yellowish branching slender threads.

Much decayed wood of birch, *Betula lutea.* Salamanca. September.

In texture and structure this resembles *Odontia fusca*, in color, *O. fimbriata.*

Mucronella minutissima *n. sp.*

Aculei very minute, about one-sixth of a line long, gregarious, subulate, white; spores minute, elliptical, .00016 in. long, .0001 broad.

Decaying oak wood. Clarksville, Albany county. September.

This species is so minute that it is scarcely visible to the naked eye. The measurement of the aculei here given was taken from the dried specimen. In the fresh plant it would probably be a little greater.

Thelephora odorifera *n. sp.*

Pilei 8 to 12 lines broad, cæspitose, subcoriaceous, subdimidiate, imbricated, fibrous-tomentose, dingy-whitish or grayish; hymenium even, not polished, concolorous; stems short or none; spores globose, echinulate, colored, .0003 to .00035 in. broad.

Rich soil under cedar trees. Jamesville. July. *Underwood,*

The species is apparently related to *T. intybacea*, but it differs from that fungus in its paler color, smooth hymenium and larger spores. The specimens at first were quite fragrant, but the odor was lost after a few weeks.

Porothelium fimbriatum *Fr.*

Decaying wood. Carrollton. September.

Cyphella arachnoidea *n. sp.*

Irregularly cupular, unequal, very thin, membranous, tender, minutely downy externally, pure white, the hymenium in large specimens somewhat uneven; spores subglobose, .00016 to .0002 in. long, .00016 broad.

Cups 1 to 2 lines broad, seated upon or developing from fine white loosely branching webby strings of mycelium.

Bark and mosses. Carrollton. September.

The specific name has reference to the character of the mycelium, by which the species may easily be recognized.

Geaster limbatus *Fr.*

Caldwell, Warren county. June. The specimens were old, but appear to belong to this species.

Geaster rufescens *Pers.*

Gouverneur, St. Lawrence county. *Mrs. E. C. Anthony.*

Phyllosticta Ludwigiæ *n. sp.*

(Plate 4, figs. 22 and 23.)

Spots small, orbicular, sometimes confluent, centrally pallid, dry, surrounded by a brownish or purplish-red border; perithecia few, often single, epiphyllous, .004 in. broad, black; spores elliptical or oblong, binucleate, colorless, .0003 to .00035 in. long, .00016 broad.

Living leaves of water purslane, *Ludwigia palustris.* Selkirk. July.

Phoma sordida *Sacc.*

Dead twigs of water beech, *Carpinus Americana.* Cemetery, Albany county. May.

Dothiorella Celtidis *n. sp.*

Stroma small, depressed, suborbicular, seated on the inner bark, erumpent; perithecia immersed in the stroma; spores oblong, obovate or subfusiform, often binucleate or trinucleate, colorless, .0008 to .001 in. long, .0003 to .00035 broad, sometimes oozing out in a whitish mass.

Dead branches of hackberry, *Celtis occidentalis.* Saugerties. May.

Sphæropsis Ellisii *Sacc.*

Dead corticated branches of tamarack, *Larix Americana.* Kasoag, Oswego county. July.

Var. *Laricis.* Perithecia larger, about .014 in. broad, often arranged in rows and surrounded by the whitish ruptured epidermis; spores .0012 to .0018 in. long, .0006 to .0008 broad.

Sphæropsis rubicola *C. & E.*

Dead stems of blackberry, *Rubus villosus.* Menands. October.

Diplodia Liriodendri *n. sp.*

Perithecia hemispherical, subdepressed, erumpent, single or two to four in a cluster, black; spores oval or oblong, at first simple, then uniseptate, colored, .0007 to .0009 in. long, .0005 broad.

Dead branches of tuliptree, *Liriodendron tulipifera*. Sandlake. June.

Diplodia multicarpa *n. sp.*

Perithecia very numerous, sometimes surrounding the branch on all sides, minute, erumpent, slightly prominent, partly covered by the longitudinally or stellately ruptured epidermis, black; spores oblong eliptical, .0007 to .0009 in. long, .0004 to .00045 broad.

Dead branches of sassafras. Carrollton. September.

Hendersonia epileuca *B. & C.*

Dead branches of red mulberry, *Morus rubra*. Saugerties. May.

Septoria Pteridis *n. sp.*

Perithecia hypophyllous, subconic, black; spores filiform, very long, curved or flexuous, continuous, .0003 to .0004 in. long.

Dead fronds of common brake, *Pteris aquilina*. Sandlake. June.

Melanconium zonatum *E. & E.* in ed.

Dead branches of ironwood, *Ostrya Virginica*. Clarksville. September.

This species has sometimes been referred to *M. bicolor*, which it resembles, but from which it may be distinguished by the absence of the conspicuous white stroma of that species and by the translucent zone in the middle of the spores.

Septomyxa Carpini *n. sp.*

(Plate 4, figs. 13 and 14.)

Heaps subcutaneous, slightly prominent, erumpent, whitish within; spores hyaline, narrowly fusiform, binucleate, at length uniseptate, oozing out and forming a subrufescent convex mass on the surface of the matrix.

Bark of water beech, *Carpinus Americana*. Meadowdale, Albany county. June.

Pestalozzia lignicola *Cke.*

Decorticated wood of spruce, *Picea nigra*. Redfield. July. It sometimes has a hysteriiform appearance.

Puccinia Spergulæ *DC.*

Living stems and leaves of corn spurry, *Spergula arvensis.* Redfield. July.

Doassansia Sagittariæ *Fisch.*

Living leaves of arrowhead, *Sagittaria variabilis.* Redfield. July. *Uredo Sagittariæ* West., *Protomyces Sagittariæ* Fckl. and *P. Bizzozerianus* are given as synonyms.

Aspergillus aviarius *n. sp.*

(Plate 4, figs. 9 to 12.)

Sterile hyphæ creeping, white or whitish, fertile hyphæ erect, simple, continuous, .0003 in. thick, terminating at the apex in a globose vesicle, which is .0008 to .0012 in. broad, with an uneven or somewhat papillose surface; chains of spores growing directly from the surface of the vesicle, spores minute, globose, smooth, .00008 to .0001 in. broad, both these and the hyphæ at first whitish, then pale bluish-green or glaucous.

On the inner costal surface of a canary bird. New York. November. *E. B. Southwick.*

The bird from which this fungus was taken appeared to be sick for about four days immediately preceding its death. It would try to sing, but could not from hoarseness. It appeared to be cold, and was given a warm bath, but it died the following night. Upon cutting open the body the fungus was found. Its occurrence within the body of the bird is remarkable, and if it was the cause of its death it must be considered an injurious species. No other cause was evident. But how it could gain an entrance into the visceral cavity of the body and why it should fruit therein are mysteries.

The species differs from *A. virens* Lk. by its more slender hypæ, smaller spores, papillose vesicle and by the grayish-blue or glaucous color of the patches.

Sporotrichum Lecanii *n. sp.*

Hyphæ very slender, .00008 to .0001 in. thick, procumbent, irregularly branched, branches suberect, white; spores minute, colorless-oblong or cylindrical, .0002 to .0003 in. long, .0001 to .00012 broad.

On scale insect of cucumber tree, *Magnolia acuminata.* Salamanca. September.

The fungus covers the insect with a dense white pulverulent coat. "The insect appears to be an undescribed species of Lecanium." *J. A. Lintner.*

Diplosporium breve *n. sp.*

Hyphæ cæspitose, short, sparingly branched, white; spores oblong, uniseptate, slightly constricted at the septum, colorless, .0005 to .0006 in. long, .0002 to .00025 broad.

On some effete Sphæria. Redfield. July.

Didymaria Ungeri *Cd.*

Living leaves of northern buttercup, *Ranunculus septentrionalis.* Redfield. July.

Ramularia destruens *n. sp.*

(Plate 4, figs. 4 to 6.)

Tufts amphigenous, minute, gregarious, white, the hyphæ extremely short, .0002 to .0004 in. long; spores elliptical or oblong, colorless, .0002 to .0005 in. long, .00012 to .00015 broad.

Living leaves of mountain ash. *Pyrus Americana.* Hewitt's pond, Adirondack mountains. July.

This is a very destructive fungus. It quickly discolors and kills the leaves. The discoloration in most cases appears to progress from the apex toward the base of the leaf, which soon assumes a brown and dead appearance as if burned by fire. The effect is somewhat similar to that produced in the foliage of the apple and pear by the "blight." Nearly all the leaves were killed on the tree from which our specimens were taken.

The fruiting part of the fungus breaks out here and there on the dead leaves, but it is not abundant. The mischief is apparently due to the rapidly spreading mycelium. The species is one of the most minute of the genus, and is easily overlooked, though the effect of its work in the leaves is painfully evident.

Ramularia Junci *n. sp.*

Spots transverse, brown; hyphæ extremely short, cæspitose spores very slender, straight or curved, often slightly narrowed toward one end, .001 to .002 in. long.

Living leaves of *Juncus marginatus.* Selkirk. June.

Ramularia graminicola *n. sp.*

(Plate 4, figs. 1 to 3.)

Spots small, numerous, irregular or subelliptical, pallid, surrounded by a broad, indeterminate brownish border; hyphæ amphigenous, short, colorless, .0005 to 001 in. long; spores subcylindrical, or fusiform, sometimes pointed at each end, sometimes becoming spuriously uniseptate, colorless, .001 to .0014 in. long.

Living leaves of fowl meadow grass, *Poa serotina.* Wilmurt lake. July.

This and the two preceding species are perhaps referable to the genus Cylindrosporium on account of their simple spores and short hyphæ.

Ramularia Heraclei *Sacc.*

Living leaves of cow parsnip, *Heracleum lanatum.* Morehouseville. July.

Cercosporella Veratri *n. sp.*

(Plate 4, figs. 7 and 8.)

Spots suborbicular or elliptical, blackish, slightly frosted by the epiphyllous subfusiform, mostly triseptate colorless spores, which terminate at one end in a long slender tapering almost hair-like point; hyphæ very short, almost obsolete; spores .002 to .004 in. long, .00016 to .0002 broad in the widest part.

Languishing leaves of Indian poke, *Veratrum viride.* Morehouseville. July.

Bispora effusa *n. sp.*

(Plate 4, figs. 15 to 17.)

Effused in a black somewhat velvety stratum; hyphæ erect, simple, colored, forming chains of spores; spores oblong, uniseptate, slightly constricted at the septum, .0005 to .0006 in. long, .00016 to .0002 broad.

Decorticated wood of sugar maple, *Acer saccharinum.* Adirondack mountains.

Cladosporium entoxylinum *Cd.*

Decorticated wood of spruce, *Picea nigra.* Wilmurt lake. July.

Septonema episphæricum *n. sp.*

Tufts confluent, blackish-brown; hyphæ and chains of spores often densely fasciculate, .005 to .006 in. long; spores variable, oblong or cylindrical, one to three septate, .0005 to .0012 in. long, .0002 to .0003 broad, colored or subhyaline.

On effete *Diatrype stigma.* Morehouseville. July.

Apparently allied to *S. bisporoides*, from which it differs in its larger spores and in its densely fasciculate mode of growth.

Coniothecium effusum *Cd.*

Decaying chestnut wood. Conklingville. September.

Epicoccum vulgare *Cd.*

Living or languishing leaves of arrowhead, *Sagittaria variabilis.* Carrollton. September. Our specimens belong to var. *pallescens* Rabenh.

Epicoccum diversisporum *Preuss.*

Decorticated wood of spruce. Wilmurt lake. July. Notwithstanding the great diversity between the habitat of our fungus and of the typical form of the species to which we have referred it, the agreement with the description is so close that we dare not separate our plant. The spores in it vary from .0003 to .0008 in. in diameter. Rarely it is not seated on a red spot. It grows in company with *Cladosporium entoxylinum.*

Valsa microstoma *Fr.*

Branches of wild red cherry, *Prunus Pennsylvanica.* Hewitt's pond, Adirondack mountains. July.

Valsa coöperta *Cke.*

Dead branches of elm, *Ulmus Americana.* Sandlake. June.

Eutypella cerviculata *Sacc.*

Dead trunks and branches of water beech, *Carpinus Americana.* Lyndonville. *Fairman.* Carrollton and Bethlehem. September.

Diaporthe binoculata *Sacc.*

Dead branches of cucumber tree, *Magnolia acuminata.* Carrollton. September.

Our specimens differ from the description of *D. binoculata* in the black circumscribing line which sometimes penetrates the wood slightly. The spores also are a little smaller than the dimensions given for those of that species, but in other respects the agreement is so well sustained that our plant is probably not specifically distinct. The spores in it are .0006 to .0007 in. long, about .0003 broad. It is sometimes associated with *Sphæronema Magnoliæ.* The typical form was found on *Magnolia glauca.* It is *Valsa binoculata* Ellis.

Diaporthe tuberculosa *Sacc.*

Dead trunk of June berry, *Amelanchier Canadensis.* Carrollton. September.

Var. *dispersa.* Perithecia .02 to .025 in. broad, a little larger than in the type, the ostiola often piercing the epidermis separately.

Diaporthe rostellata *Nitsch.*

Stems of blackberry, *Rubus villosus.* Menands. July. Also on dead stems of *Rubus odoratus.* Salamanca.

This may be considered a noxious fungus. The plant found on blackberry stems had surrounded the stem with a pallid spot and had killed all the plant above this spot. The asci are often only four-spored.

Diaporthe Americana *Speg.*

Dead branches of cucumber tree. Carrollton. September.

The published description of this species is incomplete the spores in the specimens from which it was made being immature. In our specimens they are narrowly fusiform, acute at each end, quadrinucleate, .0006 to .0007 in. long, .00016 broad.

Massaria epileuca *B. & C.*

Dead branches of red mulberry, *Morus rubra.* Saugerties. May.

Caryospora minor *n. sp.*

(Plate 4, figs. 18 to 21.)

Perithecia .014 to .021 in. broad, slightly sunk in the matrix, subglobose, even, black; asci four to eight-spored, subcylindrical, .006 in. long, .0008 broad; spores fusiform, pointed at each end, uniseptate, slightly colored, .0018 to .002 in. long, .0005 broad.

Pericarp of hickory nut. Albany.

This differs from *C. putaminum* in its smaller perithecia which are not concentrically grooved and in its shorter, narrower and paler spores which are more numerous in an ascus.

Metasphæria nuda *n. sp.*

Perithecia superficial, ovate or conical, submembranous, scattered or few collected together, black, the walls parenchymatous and blue under the microscope; asci about .003 in. long, .0005 broad; spores crowded or biseriate, fusiform, triseptate, colorless, .0007 to .0008 in. long, .00024 broad.

Dead stems of millet, *Panicum miliaceum.* Menands. October.

The species approaches *M. Panicorum*, from which it is distinct by its superficial perithecia and shorter spores. The superficial character of the perithecia would remove the species to Zignoella, but the texture is not carbonaceous, and it has therefore been placed in Metasphæria.

Pleospora Asparagi *Reb.*

Dead stems of asparagus, *Asparagus officinalis.* Menands. April.

This species appears scarcely to differ from *P. herbarum* except in the fewer septa of the spores.

Lophiostoma vagans *Fab.*

Dead stems of *Lonicera tartarica.* Lyndonville. July. *Fairman.*

Stictis minuscula *Karst.*

Dead twigs of spruce, *Picea nigra.* Redfield. July.

Pseudopeziza Pyri *n. sp.*

Cups scattered, minute, .014 to .021 in. broad, hypophyllous, erumpent, surrounded by the laciniately ruptured epidermis, brownish when moist, blackish when dry, the margin incurved; hymenium whitish or grayish-white; asci subcylindrical, .002 to .0024 in. long; spores biseriate, oblong, straight or slightly curved, colorless, .0004 to .0005 in. long.

Fallen leaves of mountain ash, *Pyrus sambucifolia.* Cascadeville, Essex county. June.

Saccharomyces Betulæ *Pk. & Pat.*

(Plate 2, figs. 16 and 17.)

Conidia variable, elliptical, oblong or subcylindrical, often forming submoniliform strings of cells .0003 to .0008 in. long, .00016 broad, intermingled with slender mycelial threads, the whole forming a thin whitish gelatinous stratum.

Sap moistened cut surface of a birch stump, *Betula lutea.* New Baltimore, Greene county. May.

This is a curious species, apparently related to *S. albicans,* but differing from it in habitat and spore dimensions, and it is also peculiar and aberrant in having distinct hyphæ.

(D)

REMARKS AND OBSERVATIONS

Thalictrum purpurascens *L.* **var. ceriferum** *Aust.*

Fishkill mountains. June.

Cimicifuga racemosa *Nutt.*

Common in the Highlands and in the southwestern part of the State. It is rare in the eastern and northern parts.

Nymphæa odorata *Ait.*

After flowering the peduncle sometimes takes the form of a spiral coil and thus shortens itself either to adapt itself to diminishing depth of water or to draw the ovary beneath the surface to mature its fruit.

Valisneria spiralis does the same thing. Fruiting specimens showing the coiling of the peduncles were collected in Boreas pond, Adirondack mountains.

Corydalis flavula *DC.*

Green pond, one mile east of Jamesville. *Prof. L. M. Underwood.*

Lychnis vespertina *Sibth.*

Storm King station. June.

Stellaria media *Smith.*

This chickweed is a very variable plant. It often lives through the winter and is then ready to bear fruit early in the spring. Specimens were collected in April last bearing an abundance of flowers and mature fruit. The plants were procumbent, the nodes short, leaves small and but slightly petioled, and the whole aspect was quite unlike that of the more erect large-leaved form that occurs later in the season. The fields where these plants grew were in cultivation the preceding summer, but the seeds apparently germinated after cultivation ceased, and the mild winter enabled the plants to perfect themselves and bear fruit early in the spring.

Linum Virginianum *L.*

Selkirk. July. It is not rare to find two to four plants growing from the same root, and the old stem of last year's growth standing among them, thus indicating a perennial character.

Rubus hispidus *L.* **var. suberecta** *n. var.*

Stems erect or recurved, densely beset with stiff bristles or weak prickles; leaves generally five-foliate on the young plants, trifoliate on old ones, the leaflets *thin*, broadest in the middle, rather sharply serrate, mostly *acute or short acuminate*, entire and wedge shaped at the base.

Pastures and bushy places. Morehouseville. July.

This plant is so unlike the ordinary form of *R. hispidus* that I am constrained to consider it as a variety. It is quite abundant in the locality mentioned, growing chiefly in dry places. The young shoots are perfectly erect and nearly always have the leaves either completely five-foliated or the lateral leaflets deeply two-lobed, so that were it possible to overlook the dense coat of bristles with which the stem and petioles are clothed they might easily be mistaken for a small growth of *Rubus villosus*. The old stems usually become recurved as in *R. occidentalis*, and have the leaves of the flowering branches trifoliate. The peduncles and pedicels are mostly bristly and the sepals mucronate pointed. The plants grow from one to two feet high. Were the species of Rubus disposed to hybridize as some claim for *R. occidentalis* and *R. strigosus*, it might be asserted that this is a hybrid between *R. villosus* var. *frondosus* and *R. hispidus*, the former giving character to the leaves and the mode of growth, the latter to the clothing of the stem. The former was present in the vicinity of these plants, but the latter was not seen in that neighborhood. It is in my opinion to be considered a variety rather than a hybrid. The Caroga plant noticed in the Thirty-eighth report is the same thing. It approaches variety *setosus* T. & G. in some respects, but its thin leaves and more erect habit distinguish it.

Myriophyllum tenellum *Bigel.*

Plentiful at the outlet of Cheney pond. August.

Lythrum alatum *Pursh.*

Apparently well established in a pasture near Selkirk.

Opuntia vulgaris *Mill.*

In grassy ground on the summit of a high hill in Columbia county, four miles south of Hudson, is a station for this plant. The hill is locally known as Mount Merino, and the plants are scattered over an area several rods in extent. The plants mostly exhibit the characters that would place them under *O. Rafinesquii*, but in some the short leaves of *O. vulgaris* are present. I therefore leave the species for the present under the name applied to it by Dr. Torrey in the State Flora.

Galium triflorum *Mx.*

Professor R. P. Thomas informs me that this common plant, popularly known as "sweet-scented bed straw," has recently acquired considerable celebrity among some of the inhabitants of Montgomery county, because of its medicinal qualities. It is reported that an aggravated case of dropsy, which had been pronounced by the physicians hopeless and incurable, was cured by the use of a decoction of this herb. In the United States Dispensatory, by Wood and Bache, *Galium Aparine* is noticed as having been used for dropsy, but I find no mention of this plant.

Aster undulatus *L.*

A strongly marked form occurs near Carrollton, in which the leaves are mostly lanceolate with the margins very much curled or crisped.

Aster Novi-Belgii *L.*

Boreas River, Adirondack mountains. August.

Antennaria plantaginifolia *Hook.*

A peculiar form was collected in Sandlake, Rensselaer county. The flower heads are three to five, mostly four, racemosely placed at distances of a half inch or more. The stem is very slender, about a foot high, and the leaves are narrow, scarcely exceeding half an inch in the widest part.

Rudbeckia triloba *L.*

This cone flower occurs in several places along the road between Rhinebeck and Rock City in Dutchess county. As in Ulster county, it appears to have escaped from cultivation in flower gardens. But few of the plants have the leaves three-lobed.

Verbascum Lychnitis *L.*

Sandy soil at Sylvan Beach, Oneida county. A form with white flowers.

Calopogon pulchellus *R. Br*

On the marsh near Kasoag a form was found having beautiful lilac-tinted flowers. Plants having flowers of the ordinary color grew near them and made the contrast more noticeable.

Clintonia umbellata *Torr.*

This plant occurs as far east as Carrollton, Cattaraugus county. Some plants have the berries blue as in *C. borealis*, others have them black.

Eleocharis intermedia *Schultes.*

Cheney pond. August. A small form with culms two to five inches long and spikes one to two lines.

Scirpus Smithii *Gray.*

Sylvan Beach. July.

Carex folliculata *L.*

An unusual form of this sedge grows on "Beaver meadow" near Morehouseville. The stems are stout, erect, only one to two feet high, very leafy; the pistillate spikes are three to four, approximate, all on short erect peduncles.

Carex crinita *Lam.*

A large form with three staminate spikes all fertile at the apex was collected at Wilmurt lake, Hamilton county. Variety *minor* Boott was collected at Sylvan Beach, Oneida county.

Polypodium vulgare *L.* **var. cristatum** *Lowe.*

(Plate 1, figs. 1 to 4.)

Rock City, Dutchess county. October.

Fronds of this very beautiful and rare variety were sent me by Mr. Charles A. Coons. I afterwards visited the locality and found the fern growing in a small patch, probably six or eight feet long by one to two feet wide. All the fronds in this patch exhibited the peculiar character of those first sent me. Fronds of the usual form were growing near by but did not mingle with these, nor were any intermediate forms seen. The fronds are beautifully crested, being one to three times dichotomously or somewhat irregularly divided at the apex, and each segment is dilated at its apex and projects in two to six lobes, these lobes manifesting a disposition to extend themselves along the upper margin of the segment. Sometimes the branches at the apex are a little twisted or distorted and form a sort of rosette. The ultimate ones terminate in lobes similar to those at the apices of the segments. The fronds are fertile.

This variety was originally discovered in Ireland by Mr. Henry S. Perry. It was figured and described by Lowe in his work on New and Rare Ferns. This figure exhibits well the dilation and lobing of the apices of the segments in our plant, but shows the crested branching apex of the frond very poorly, for it is represented as scarcely more than bifurcate. His description reads thus: "Like *Aspidium filix-mas* var. *cristatum*, the present plant has multifid or tasseled apices on each pinna, the midrib of the frond dividing and branching about an inch below the apex of the frond, as well as the midrib of each pinna about a quarter of an inch below the apex of each pinna."

"The present variety, from the points of each frond being branched and crested and all the divisions terminating in crested tufts so as to form a frilled margin, is both distinct and beautiful."

In our plant there is apparently a tendency to branch and divide more freely at the apex of the frond and less freely and deeply at the apices of the segments than in the European. So far as I know it has not before been found in this country. Probably there will be a considerable demand for it by lovers and propagators of ferns, but it is to be hoped that specimens will not be taken so freely from the patch as to destroy the station.

Isoetes echinospora *Durieu.*

Cheney pond. August.

Riccia fluitans *L.* **var. Sullivantii** *Aust.*

Muddy places in ditches. Selkirk. June.

Collybia Familia *Pk.*

This species is not rare in Cattaraugus county. It grows in clusters of very many individuals on old prostrate trunks and decaying wood of hemlock. It varies in color from nearly white to brown. It is somewhat hygrophanous and the stem is more or less villose-tomentose at the base. It is allied to *C. acervata*, but the pileus is not umbonate, there are no rufous or incarnate tints either in the pileus lamellæ or stem, and the spores are minute and globose .00012 to .00016 inch in diameter, not elliptical as in that species.

Pleurotus atrocæruleus *Fr.*

In Sylloge the spores of this species are said to be globose, 2 to 3 mk. in diameter. If this is correct then the plant referred to this species in Report 39, p. 65, must be distinct. On the other hand both Smith and Cooke represent the spores of this species as elliptical and closely agreeing with those of the American plant in dimensions.

On the supposition that the English mycologists are correct in their representations of the spores of this species our plant can scarcely be more than a variety differing in color from the type. Fine specimens were found at Carrollton growing on the trunk of a cucumber tree. It seems best at least to designate it as a variety, for it does not appear to exhibit at all the dark blue hue so characteristic of the type.

Var. griseus. Pileus grayish or grayish-brown, clothed with rather coarse pointed whitish or grayish hairs; lamellæ not broad; spores elliptical, sometimes slightly curved, .0003 in. long, .00016 broad.

The pileus is sometimes attached by the vertex, and the margin is often beautifully crenately lobed or scalloped.

Entoloma cyaneum *Pk.*

Decaying logs in woods. Morehouseville. July. These specimens differ from the type in having the pileus grayish-brown and the stem wholly bluish. The species approaches *E. griseo-cyaneum* very closely, but differs in the color of the pileus. It is very rare.

Pholiota discolor *Pk.*

Two forms of this species are found. One has a scattered mode of growth, the other a cæspitose. The latter was found on decaying wood of birch, *Betula lutea*, at Morehouseville. The species is allied to *P. marginata*, from which it is readily distinguished by its viscid pileus.

Stropharia squamosa *Fr.*

Specimens collected near Salamanca agree very closely with the description of this species, but they differ in having the pileus of a beautiful orange-red color. In this respect, and indeed in many other respects, they agree better with the description of *Stropharia thrausta*, but disagree in having the pileus neither hygrophanous nor glabrous. The plants are generally rather slender, though individuals occur having a stout stem and a pileus three or four inches broad. This is viscid and beautifully adorned with whitish superficial scales which are easily destroyed. The margin is often appendiculate. The lamellæ are broad and subdistant, and the stem is long, hollow, floccose-squamose and annulate. The whole plant is fragile, but this may be due in a measure to the fact that it is apt to be infested by the larvæ of insects. It is probably to be considered a variety of *S. squamosa* and is apparently equivalent to *Agaricus thraustus* var. *aurantiacus* of Cooke's Illustrations.

Boletus punctipes *Pk.*

Under pine trees. Corning, Steuben county. September. This species had not been observed by me since its discovery in 1878. The spores when first dropped are olive green on white paper, but the greenish hue soon fades or rather changes to brownish-ochraceous.

Coniophora puteana *Fr.*

If this species is rightly understood by me it is, as Fries says, a very variable one. It varies not only in the color of the hymenium but also in its character and in that of the margin. The hymenium is sometimes even, sometimes tuberculose and occasionally rimose when dry, as in some species of Corticium. The margin may be broad naked and white or it may be obliterated by the hymenium. The subiculum is either thin and papery or thick and firm. It is sometimes separable from the matrix. It occurs on spruce, hemlock, birch, sycamore, ironwood, etc. A form is found on spruce having the characters of variety *areolata* Fr. except in the color of the hymenium.

Var. *tuberculosa* has the subiculum thick, firm, yellowish, the hymenium persistently tuberculose. This was found on sycamore, *Platanus occidentalis.*

Var. *rimosa.* Hymenium rimose. On hemlock, *Tsuga Canadensis.*

Doassantia Alismatis *Cornu.*

Living or languishing leaves of *Alisma Plantago.* Whitehall. September.

Fusicladium destruens *Pk.*

When my last report was written this fungus was suspected of being the cause of a disease in the oat plant. Observations made in the diseased oat fields the past summer lead to a different conclusion. The disease has appeared over a wide extent of country, and in the fields examined scarcely an unaffected plant could be found. Besides, other fungi, such as *Cladosporium herbarum* and *Dinemasporium graminum,* were found upon the dead and dying leaves. It may be affirmed that the presence of these fungi on the leaves is a consequence not a cause of their death, for these species are known to inhabit the dead tissues of plants. It is hardly probable that the Fusicladium could have spread so extensively, in so short a time, nor that it should be so omnipresent in every oatfield. It is more reasonable to suppose that it, like the other fungi mentioned, is a consequence rather than a cause of the disease. Many discolored leaves had no fungus upon them. An examination of the roots of the affected plants gave no indication of the presence of insects or nematoids.

Tuberculina persicina *Sacc.*

On blackberry rust, *Cæoma nitens.* Morehouseville.

Vibrissea truncorum *Fr.*

Var. *albipes.* Stem short, thick, white. Decaying wood about the margin of lakes. Hewitt's pond and Clear lake, Adirondack mountains. July.

The following species and varieties are extra limital. Having been sent to me for identification, and finding no description applicable to them, I place them on record here.

Tricholoma maculatescens *n. sp.*

Pileus compact, spongy, reddish-brown, convex then explanate, obtuse, even, slightly viscid when wet, becoming rivulose and brown-spotted in drying, flesh whitish, margin inflexed, exceeding the lamellæ: lamellæ slightly emarginate, rather narrow, cinereous; stem spongy-fleshy, equal, sometimes abruptly narrowed at the base, solid, stout, fibrillose, pallid or whitish; spores oblong or subfusiform, pointed at the ends, uninucleate, .0003 in. long, .00016 broad.

Pileus 1.5 to 3 in. broad; stem 2 to 3 in. long, 6 to 9 lines thick.

Among fallen leaves in deciduous woods. Ohio. October and November. *A. P. Morgan.*

This appears to be related to *T. transmutans* and *T. flavobrunneum*, but may be distinguished from them by the spotting of the pileus and the shape of the spores.

Agaricus campestris *L.*

Var. *griseus.* Pileus pale-gray, silky, shining; annulus evanescent.

Winchester, Virginia. October. *T. Taylor.*

This mushroom, though quite different in appearance from the ordinary forms of *A. campestris*, is scarcely more than a variety. Its spores are of the same size and character as in that species. It is eaten freely by the inhabitants of Winchester.

Armillaria mellea *Vahl.*

Var. *radicata.* Stem penetrating the ground deeply with a tapering, root-like prolongation.

London, Canada. *J. Dearness.*

The root-like prolongation of the stem is suggestive of that seen in *Collybia radicata*, but in all other respects the plant is *A. mellea.*

(E)

NEW YORK SPECIES OF TRICHOLOMA

Tricholoma *Fr.*

Hymenophorum continuous with the stem, the veil obsolete or only floccose or fibrillose and adherent to the margin of the pileus; lamellæ sinuate behind, not equally attenuate, adnate or decurrent; stem fleshy, not corticated.

The species of Tricholoma are numerous and are mostly rather large, having a fleshy pileus and a stout fleshy or fibrous-fleshy stem and white spores. The veil is usually very slight, consisting of a mere pruinosity or of a minute tomentum or of downy flocci or fibrils adhering to the margin of the pileus, and it is not often noticeable except in the young plant. The pileus is often thick and umbonate but very rarely umbilicate. The genus is distinguished from Armillaria, on one hand, by the entire absence of an annulus and from Clitocybe, on the other, by the sinuate or emarginate lamellæ and the fleshy or fibrous fleshy stem. From Collybia, in which the character of the lamellæ is similar, it is distinguished by its more fleshy pileus and stem and by its more terrestrial habitat, for nearly all its species grow on the ground.

Some of the species are known to be edible and probably many others are. None are known to be absolutely poisonous.

The species were arranged by Fries in two series, one of which was composed of four tribes, the other of three. One tribe in each series is yet unrepresented in our Flora. The principal distinguishing features of the series and tribes are found in the pileus.

Key to the Tribes

Pileus viscid when moist.......................... Limacina.
Pileus not viscid when moist 1
1. Pileus dry 2
1. Pileus not dry... 3
2. Pileus fibrillose or adorned with floccose or fibrillose scales.. Genuina.
2. Pileus punctate-granulose or adorned with smooth scales.. Rigida.
2. Pileus at first slightly silky, soon glabrous......... Sericella.
3. Pileus fleshy, soft, fragile, adorned with watery spots or rivulose.. Guttata.
3. Pileus compact, then spongy, glabrous, moist .... Spongiosa.
3. Pileus thin, hygrophanous...................... Hygrophana.

Series A

Pileus viscid when moist, squamose, fibrillose, granulated or silky, or if glabrous, its flesh firm, not spongy, watery or hygrophanous; veil fibrillose.

Limacina

Pileus viscid when moist, either innately fibrillose, or squamulose, truly and firmly fleshy, not hygrophanous, the margin almost naked.

The species of this tribe are distinguished from those of all the other tribes by their viscid pileus. They are divided into two groups, in one of which the lamellæ are unchangeable in color or do not become reddish or reddish-spotted; in the other they change color with age or become reddish-spotted.

	Pileus white	resplendens.
	Pileus not white	1
1.	Lamellæ yellow	equestre.
1.	Lamellæ not yellow	2
2.	Lamellæ not becoming reddish or reddish-spotted	3
2.	Lamellæ becoming reddish or reddish-spotted	5
3.	Lamellæ crowded, pileus glabrous	4
3.	Lamellæ subdistant, pileus innately fibrillose	sejunctum.
4.	Pileus greenish-yellow	intermedium.
4.	Pileus pale alutaceous	terriferum.
5.	Pileus red or incarnate	Russula.
5.	Pileus tawny-red or reddish-brown	6
6.	Pileus squamulose	Peckii
6.	Pileus not squamulose	transmutans.

Lamellæ not becoming discolored nor red-spotted.

Tricholoma equestre *L.*

EQUESTRIAN TRICHOLOMA

(Hym. Europ. p. 48. Syl. Fung. Vol. V, p. 87.)

Pileus fleshy, compact, convex becoming expanded, obtuse, pale yellowish, more or less reddish tinged, the disk and central scales often darker, the margin naked, often flexuous, flesh white or tinged with yellow; lamellæ rounded behind, close, nearly free, *sulphur-yellow;* stem stout, solid, pale-yellow or white, white within; spores .00025 to .0003 in. long, .00016 to .0002 broad.

Pileus 3 to 5 in. broad; stem 1 to 2 in. long, 6 to 10 lines thick.

Pine woods, especially in sandy soil. Albany county. September to November.

This is a noble species but not plentiful in our State. The pileus is said to become greenish very late in the season. The stem, in the typical form, is described as sulphur-yellow in color, but with us it is more often white. The scales of the disk are sometimes wanting. In our plant the taste is slightly farinaceous at first, but it is soon unpleasant.

Variety *pinastreti* A. & S. is a slender form having a thin even pileus, thinner and more narrow lamellæ and a more slender stem. *Agaricus crassus* Scop., *A. aureus* Schaeff. and *A. flavovirens* Pers. are recorded as synonyms of this species.

Tricholoma intermedium *Pk.*

INTERMEDIATE TRICHOLOMA

(N. Y. State Mus. Report 41, p. 60.)

Pileus thin, campanulate, obtuse, glabrous, slightly viscid when moist, greenish-yellow, flesh white; lamellæ *crowded*, free or slightly adnexed, *white;* stem equal, firm, glabrous, white; spores broadly elliptical, .0002 in. long, .00016 broad.

Pileus 2 to 3 in. broad; stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods. Catskill mountains. September.

This species resembles some forms of *T. equestre,* from which it is separated by its white lamellæ. It appears to be intermediate between that species and *T. sejunctum*, from which its glabrous pileus and crowded lamellæ distinguish it.

Tricholoma sejunctum *Sow.*

SEPARATING TRICHOLOMA

(Hym. Europ. p 48. Syl. Fung. Vol. V, p. 88.)

Pileus fleshy, convex then expanded, umbonate, slightly viscid, *streaked with innate brown or blackish fibrils*, whitish or yellowish, sometimes greenish-yellow, flesh white, fragile; lamellæ *broad, subdistant,* rounded behind or emarginate, white; stem solid, stout, often irregular, white; spores subglobose, .00025 in. broad.

Pileus 1 to 3 in. broad; stem 1 to 3 in. long, 4 to 8 lines thick.

Mixed woods. Suffolk county. September.

The plants referred to this species are not uncommon on Long Island, growing in sandy soil in woods of oak and pine. They are usually more or less irregular and the pileus becomes fragile. It is quite variable in color, sometimes approaching a smoky brown hue, again being nearly white. The taste of the typical form is said to be bitter, but the flavor of our plant is scarcely bitter. In other respects, however, it agrees well with the description of the species.

Tricholoma terriferum *Pk.*

EARTH-BEARING TRICHOLOMA

(N. Y. State Mus. Rep. 41, p. 60.)

Pileus broadly convex or nearly plane, irregular, often wavy on the margin, glabrous, viscid, *pale alutaceous*, generally soiled with adhering particles of earth carried up in its growth, flesh white, with no decided odor; lamellæ thin, *crowded*, slightly adnexed, white, not spotted or changeable; stem equal, short, solid, white, *floccose-squamulose at the apex;* spores minute, subglobose, .00012 in. long.

Pileus 3 to 4 in. broad; stem 1 to 1.5 in. long, 6 to 8 lines thick.

Woods. Catskill mountains. September.

Tricholoma resplendens *Fr.*

RESPLENDENT TRICHOLOMA

(Hym. Europ., p. 49, Syl. Fung., Vol. V, p. 90.)

Pileus fleshy, convex then nearly plane, even, glabrous, *viscid*, *white*, sometimes hyaline-spotted or yellowish on the disk, shining when dry, the *margin straight*, flesh white, taste mild, odor pleasant; lamellæ nearly free when young, then emarginate, somewhat crowded, rather thick, entire, white; stem *solid*, glabrous, subbulbous, even, dry, white; spores .0003 in. long, .00016 broad.

Pileus 2 to 4 in. broad; stem 2 to 3 in. long, 4 to 8 lines thick.

Thin woods. Catskill mountains. September.

This species, which is rare with us, is distinguished from all our remaining white species by its viscid pileus.

Lamellæ becoming discolored or red-spotted.

Tricholoma Russula *Schæff.*

REDDISH TRICHOLOMA

(Hym. Europ. p. 52. Syl. Fung., Vol. V, p. 94. *Agaricus rubicundus.* Report 26, p. 51.)

Pileus fleshy, convex, becoming plane or centrally depressed, obtuse, viscid, even or dotted with granular squamules on the disk, *red or incarnate*, the margin usually paler, involute and minutely downy in the young plant, flesh white, sometimes tinged with red, taste mild; lamellæ subdistant, rounded behind or subdecurrent, white, often becoming red-spotted with age; stem solid, firm, whitish or rose-red, squamulose at the apex; spores elliptical, .00028 in. long, .00016 broad.

Pileus 3 to 5 in. broad; stem 1 to 2 in. long, 6 to 8 lines thick.

Mixed woods. Albany, Cattaraugus and Steuben counties. September and October.

According to the description the typical plant has the pileus incarnate and the stem rosy-red, but in the American plant the pileus is generally more clearly red and the stem white, though this is often varied with reddish stains. These discrepancies in our plant led to its publication as a distinct species, but in Mycological Illustrations, fig. 926, *T. Russula* is represented with a bright red pileus, and it has seemed best to refer our plant to that species. The disk in it is often squamulose-dotted, rather than granulated. The species is recorded edible, but I have not tested it.

Tricholoma transmutans *Pk.*

CHANGING TRICHOLOMA

(N. Y. State Mus. Rep. 29, p. 38.)

Pileus convex, *nearly glabrous*, viscid when moist, brownish, reddish-brown or tawny-red, usually paler on the margin, flesh white, taste and odor farinaceous: lamellæ narrow, close, sometimes branched, whitish or pale-yellowish, becoming dingy or reddish-spotted when old: stem equal or slightly tapering upward, *glabrous* or slightly silky-fibrillose, stuffed or hollow, whitish, often marked with reddish stains or becoming reddish-brown toward the base, white within: spores subglobose, .0002 in. broad.

Pileus 2 to 4 in. broad; stem 3 to 4 in. long, 3 to 6 lines thick.

Woods. Albany, Rensselaer and Essex counties. August to September.

The plants are often cæspitose. The species is related to a group of closely allied forms including *T. fulvellum*, *T. albobrunneum*, *T. ustale* and *T. pessundatum*, from all of which it is distinguished by its farinaceous odor. It is also related to *T. flavobrunneum* and *T. frumentaceum*, which have a similar odor, but from which it differs in its subglobose, smaller spores. I suspect that *Agaricus frumentaceus* of Curtis' catalogue belongs to this species. Both the pileus and stem, as well as the lamellæ, are apt to assume darker hues with age or in drying, and this character suggested the specific name. The species is classed as edible.

Tricholoma Peckii *Howe.*

PECK'S TRICHOLOMA

(Bull. Torrey Bot. Club, vol. vi, p. 66.)

Pileus convex or nearly plane, viscid when moist, *squamulose*, tawny-red inclining to tawny-orange, flesh white, odor farinaceous: lamellæ narrow, close, sometimes branched, white: stem equal or slightly thickened at the base, *squamulose*, white at the top, elsewhere colored like the pileus: spores minute, broadly elliptical or subglobose, .00016 to .0002 in. long.

Pileus 2 to 3 in. broad: stem 2 to 3 in. long, 4 to 6 lines thick.

Thin woods. Rensselaer, Cattaraugus and Steuben counties and Catskill mountains. August and September.

This is a beautiful species, but it does not retain its colors well in drying. It is somewhat similar in appearance to the preceding species, but it is easily distinguished from all the related ones by its squamulose pileus and stem. As in the allied species, its lamellæ become discolored or spotted with age. It is perhaps edible, but I have not yet had an opportunity to test it, and the taste, though at first farinaceous and pleasant, is sometimes followed by a bitterish unpleasant flavor. In wet weather the margin of the pileus and upper part of the stem are sometimes studded with drops of moisture of a reddish or orange color.

Genuina

Pileus neither moist nor viscid, generally floccose-squamose or fibrillose, flesh soft, not hygrophanous, the margin at first involute and subtomentose.

The species of this tribe as well as those of the preceding one may be arranged in two groups depending on the character of the lamellæ. In one the color of the lamellæ is unchangeable in the other it changes with age. Some of the species have a slight farinaceous odor, at least when broken, others are inodorous. In most of them the pileus is adorned with squamules or fibrils.

	Lamellæ neither changing color nor becoming spotted	1
	Lamellæ changing color or becoming spotted	6
1.	Pileus white, taste not farinaceous	Columbetta.
1.	Pileus white, squamulose, taste farinaceous	grande.
1.	Pileus not pure white	2
2.	Lamellæ yellow	rutilans.
2.	Lamellæ not clearly yellow	3
3.	Lamellæ transversely striate	striatifolium.
3.	Lamellæ not transversely striate	4
4.	Pileus glabrous	flavescens.
4.	Pileus not glabrous	5
5.	Stem squamose, tawny or ochraceous	decorosum.
5.	Stem fibrillose, white	scalpturatum.
6.	Pileus with reddish brown or tan colored hues	7
6.	Pileus some other color	9
7.	Stem subbulbous, white	tricolor.
7.	Stem equal or nearly so, not white	8
8.	Stem solid	imbricatum.
8.	Stem hollow	vaccinum.

9. Lamellæ whitish, becoming cinereous .... terreum.
9. Lamellæ becoming blackish 10
10. Lamellæ subdistant, pileus brown .... fuligineum.
10. Lamellæ crowded, pileus whitish .. .. fumescens.

Lamellæ not changing color or becoming spotted.

Tricholoma decorosum *Pk.*

DECOROUS TRICHOLOMA

(N. Y. State Mus. Rep., 25, p. 73. Plate 1, figs. 1-4.)

Pileus firm, at first hemispherical, then convex or nearly plane, adorned with numerous *brownish subsquarrose tomentose scales*, dull ochraceous or tawny, flesh white ; lamellæ close, rounded and slightly emarginate behind, the edge subcrenulate; stem solid, equal or slightly tapering upward, white and smooth at the top, elsewhere *tomentose-squamulose* and colored like the pileus; spores broadly elliptical, .0002 in. long, .00015 broad.

Pileus 1 to 2 in. broad ; stem 2 to 4 in. long, 2 to 4 lines thick.

Decaying trunks of trees. Catskill mountains and Allegany county. September and October.

A rare but beautiful species. It is often cæspitose. It departs from the character of the genus in growing on decayed wood. It bears some resemblance to *Clitocybe decora* Fr., from which it differs in color, in the character of the scales of the pileus and stem and in the color of the flesh and lamellæ. The true relationship of that species may be regarded as yet unsettled. Fries at one time placed it in Pleurotus at another in Clitocybe. Gillet has referred it to Clitocybe, Quelet to Tricholoma, and Saccardo to Pleurotus. But it seems to me that the American plant here described belongs to the genus Tricholoma notwithstanding its unusual habitat. The emarginate lamellæ and the solid fleshy stem indicate it.

Tricholoma rutilans *Schæff.*

REDDISH TRICHOLOMA

(Hym. Europ., p. 53. Syl. Fung., Vol. V. p. 96.)

Pileus fleshy, campanulate becoming plane, dry, at first *covered with a dark-red or purplish tomentum*, then somewhat squamulose, the margin thin, at first involute, flesh yellow ; lamellæ crowded, rounded, *yellow, thickened and villose on the edge* ; stem somewhat hollow, nearly equal or slightly thickened or bulbous at the base, soft, pale-yellow variegated with red or purplish floccose squamules ; spores .00025 to .0003 in. long, .00025 broad.

Pileus 2 to 4 in. broad; stem 2 to 4 in. long, 5 to 8 lines thick.

On or about pine stumps, rarely on hemlock trunks. Rensselaer, Albany, Oneida, Lewis, Cattaraugus and Fulton counties. July to November.

The species is somewhat variable in size and color. When old the pileus sometimes becomes yellowish, variegated with purplish or reddish stains. The villosity on the edge of the lamellæ is not always equally developed. *T. variegatum* of the Twenty-third Report, page 74, is probably only a small form of this species having the edges of the lamellæ nearly naked.

Tricholoma scalpturatum *Fr.*

SCRATCHED TRICHOLOMA

(Hym. Europ., p. 55. Syl. Fung. Vol. V, p. 100. *Agaricus impolitoides* N. Y. State Mus. Rep. 32, p. 25.)

Pileus at first conical or convex, then expanded, obtuse, dry, covered with tomentum which at length forms *brownish or reddish floccose scales, whitish*, flesh whitish; lamellæ somewhat crowded, emarginate, whitish, sometimes becoming yellowish when old; stem equal, solid or stuffed, fibrillose, white; spores elliptical, .00025-.0003 in. long; .00016 to .0002 broad.

Pileus 2 to 3 in. broad; stem 2 to 3 in. long, 3 to 6 lines thick.

Woods. Saratoga county. August.

Our plant has a farinaceous taste, about which nothing is said in the description of the European plant. In other respects the characters are well sustained by it.

Tricholoma flavescens *Pk.*

PALE-YELLOWISH TRICHOLOMA

(N. Y. State Mus. Rep. 26, p. 51.)

Pileus convex, firm, often irregular, dry, *slightly silky, becoming glabrous*, sometimes cracking into minute scales on the disk, *whitish or pale yellow*, flesh whitish or yellowish; lamellæ close, white or pale-yellow, emarginate, floccose on the edge; stems firm, solid, often unequal, central or sometimes eccentric, single or cæspitose, colored like the pileus; spores subglobose, .0002 in. in diameter.

Pileus 2 to 3 in. broad; stem 1 to 2.5 in. long, 4 to 6 lines thick.

Pine stumps. Albany and Rensselaer counties. October.

The species seems to be related to *T. rutilans* but has not the red or purplish tomentum of that fungus. It, like *T. decorosum*, is always lignicolous, *T. rutilans* is sometimes so.

Tricholoma Columbetta *Fr.*

DOVE-COLORED TRICHOLOMA

(Hym. Europ., p. 55. Syl. Fung., Vol. V, p. 99.)

Pileus convex, then nearly plane, fleshy, obtuse, rigid, somewhat flexuous, dry, at first *glabrous, then silky-fibrillose*, becoming even or squamulose, *white*, the margin at first *involute*, more or less tomentose, flesh white, taste *mild*; lamellæ close, emarginate, thin, white; stem stout, solid, unequal, nearly glabrous, white; spores, .00028 to .0003 in. long, .00016 to .0002 broad.

The species is very variable and the following varieties have been described.

Var. A. Pileus nearly always repand or lobed, at first glabrous, even, at length rimose-squamose, often reddish-spotted, the margin when young inflexed, tomentose; stem obese, even, unequal, swollen, an inch thick. The typical form.

Birch woods among mosses.

Var. B. Pileus subflexuous, silky-fibrillose, at length squamulose, sometimes fuscous-spotted, the margin scarcely tomentose; stem longer, equal or slightly narrowed at the base.

Bushy places. Intermediate between A. & C.

Var. C. Pileus regular, flattened, evidently fibrillose, sometimes spotted with blue, four inches broad; stem equal, cylindrical, fibrillose-striate, four inches long.

Beech woods. A showy variety so diverse from variety A that it might be regarded as a distinct species, did not variety B connect them and so much resemble both that it might with equal propriety be referred to either.

Pileus 2 to 4 in. broad; stem 1 to 4 in. long, 3 to 12 lines thick.

Woods and pastures. Albany county.

It may be distinguished from *T. album* by its mild taste. It is recorded as edible.

Tricholoma grande *Pk.*

GRAND TRICHOLOMA

(N. Y. State Mus. Rep., 44, p. 128.)

Pileus thick, firm, hemispherical, becoming convex, often irregular, dry, *squamulose*, somewhat silky-fibrillose toward the margin, *white*, the margin at first involute, flesh grayish-white, taste *farinaceous*; lamellæ close, rounded behind, adnexed, white; stem stout, solid, fibrillose, at first tapering upward, then equal or but slightly thickened at the base, pure white; spores elliptical, .00035 to .00045 in. long, .00024 broad.

Pileus 4 to 5 in. broad; stem 2 to 4 in. long, 1 to 1.5 in. thick.

Among fallen leaves in woods. Cattaraugus county. September.

The plants are often cæspitose, and then the pileus is more or less irregular and the lamellæ somewhat lacerated. The species is related to *T. Columbetta*, from which its larger size, constantly squamulose pileus, more cæspitose mode of growth, larger spores and farinaceous taste separate it. The squamules of the pileus are brownish, and the pileus itself is sometimes slightly dingy on the disk. The young margin is pure white like the stem, and both it and the upper part of the stem are sometimes studded with drops of moisture.

The plant was found on trial to be edible, but not of first quality. The flesh is not very tender, nor the flavor captivating even in young specimens.

Tricholoma striatifolium *Pk.*

STRIATE-LEAVED TRICHOLOMA

(N. Y. State Mus. Rep. 30, p. 37.)

Pileus convex or nearly plane, dry, subglabrous, somewhat shining, often obscurely dotted or squamulose with innate fibrils, grayish or grayish-brown, sometimes tinged with red, flesh white; lamellæ rather close, rounded behind, *transversely striated or venose*, white; stem slightly thickened at the base, *hollow*, white; spores subglobose or broadly elliptical, .00016 to .0002 in. long.

Pileus 2 to 3 in. broad; stem 1 to 2 in. long, 3 to 6 lines thick.

Woods. Saratoga county. October.

A rare species collected but once. The striate appearance of the lamellæ is due to the presence of small transverse vein-like elevations. The stem is of a pure chalky-white color. The odor is perceptible and peculiar.

Lamellæ changing color or becoming spotted.

Tricholoma tricolor *Pk.*

THREE-COLORED TRICHOLOMA

(N. Y. State Mus. Rep. 41, p. 60.)

Pileus broadly convex or nearly plane, sometimes slightly depressed in the center, firm, dry, obscurely striate on the margin *pale-alutaceous inclining to russet*, flesh whitish; lamellæ thin, narrow, close, adnexed, *pale-yellow, becoming brown or purplish-brown* in drying; stem stout, short, firm, tapering upward from the thickened or subbulbous base, *white;* spores broadly elliptical or subglobose, .0003 in. long.

Pileus 2 to 4 in. broad; stem 2 to 3 in. long, 6 to 12 lines thick.

Woods. Albany county. August.

The species is remarkable for its varied colors and for the peculiar hue assumed by the dried lamellæ.

Tricholoma imbricatum *Fr.*

IMBRICATED TRICHOLOMA

(Hym. Europ., p. 56. Syl. Fung., Vol. V, p. 101.)

Pileus fleshy, *compact*, convex or nearly plane, obtuse, dry, innately squamulose, fibrillose toward the margin, brown or reddish brown, the margin thin, at first slightly *inflexed and pubescent, then naked*, flesh firm, thick, white; lamellæ slightly emarginate, almost adnate, rather close, white when young, becoming reddish or spotted; stem *solid*, firm, nearly equal, fibrillose, white and mealy or pulverulent at the top, elsewhere colored like the pileus; spores .00025 in. long, .00016 to .0002 broad.

Pileus 2 to 4 in. broad; stem 2 to 3 in. long, 4 to 10 lines thick.

Under or near coniferous trees. Greene and Essex counties. September and October.

This is an edible species. It has a farinaceous odor and taste when fresh.

Tricholoma vaccinum *Pers.*

VACCINE TRICHOLOMA

(Hym. Europ., p. 56, Syl. Fung., Vol. V., p. 102.)

Pileus fleshy, convex or campanulate, becoming nearly plane, umbonate, dry, floccose-squamose, reddish-brown, the margin *involute, tomentose*, flesh white; lamellæ adnexed, subdistant, whitish, then reddish or reddish-spotted; stem equal, *hollow*, covered with a fibrillose bark, naked at the apex, whitish-rufescent; spores subglobose, .00024 in. long.

Pileus 1 to 3 in. broad; stem 2 to 3 in. long, 4 to 6 lines thick.

Under or near coniferous trees. Greene and Essex counties. September and October.

This species resembles the preceding one from which it may be distinguished by the tomentose margin of the pileus and the stuffed or hollow stem. In the American plant the pileus is sometimes streaked with innate fibrils and sometimes becomes longitudinally rimose. It is not always umbonate. It has a farinaceous taste.

Both it and the preceding species are somewhat gregarious and occur in the same localities. They are especially found in groves or thickets of young spruce trees.

Tricholoma terreum *Schæff.*

EARTH-COLORED TRICHOLOMA

(Hym. Europ., p. 57. Syl. Fung., Vol. V, p. 104.)

Pileus fleshy, thin, soft, convex campanulate or nearly plane, obtuse or umbonate, *innately fibrillose* or *floccose-squamose*, cinereous fuscous grayish-brown or mouse-color, flesh white or whitish; lamellæ adnexed, subdistant, more or less eroded on the edge, *white becoming cinereous;* stem equal, varying from solid to stuffed or hollow, fibrillose, white or whitish; spores broadly elliptical, .00024 to .00028 in. long, .00016 to .0002 broad.

Pileus 1 to 3 in. broad; stem 1 to 2 in. long, 2 to 4 lines thick.

Woods. Albany, Rensselaer and Cattaraugus counties. September to November.

Var. *fragrans* n. var. Pileus innately fibrillose, obtuse, odor farinaceous. Dutchess county.

This is a very variable species and European authors do not fully agree upon the characters that belong to it. According to Fries it is subinodorous, but Stevenson says it is inodorous. One author describes the spores as "nearly spherical," .0002 in. long, another says they are .00024 to .00028 in. long, .00016 broad. The spores of our plant agree closely with the latter measurement. The plants are sometimes gregarious, sometimes cæspitose. The larger forms often have the pileus obtuse fibrillose or squamulose and less regular, the smaller ones more regular, more floccose-squamulose and often with a very small umbo or papilla. I find this form especially in pine woods. It varies considerably in color and is a pretty little plant. The variety *fragrans* is generally a little larger and is edible, though it retains somewhat of the farinaceous flavor. This appears to be common farther south, and I suspect that *Agaricus hypopythius* of Curtis' Catalogue is the same thing.

T. argyraceum Bull., in which the lamellæ and commonly the pileus also are pure white is considered by Fries as a subspecies of *T. terreum*. *T. argyreum* Kalchb. he thinks is the same as Bulliard's plant. *T. atrosquamosum* Chev., in which the whitish or cinereous umbonate pileus is adorned with minute black scales, and *T. orirubens* Quel., in which the lamellæ have a rosy-red edge, are also made subspecies of *T. terreum* by Stevenson.

Tricholoma fumescens *Pk.*

SMOKY TRICHOLOMA

(N. Y. State Mus. Rep. 31, p. 32.)

Pileus convex or expanded, dry, clothed with a very minute appressed tomentum, whitish; lamellæ narrow, crowded, rounded behind, whitish or pale cream color, *changing to smoky-blue or blackish* where bruised; stem short, cylindrical, whitish; spores oblong-elliptical, .0002 to .00025 in. long.

Pileus 1 in. broad; stem 1 to 1.5 in. high, 2 to 3 lines thick.

Woods. Columbia county. October. Rare.

The species is remarkable for the smoky or blackish hue assumed by the lamellæ when bruised and also in drying. It is apparently related to *T. immundum* Berk., but in that species the whole plant becomes blackish when bruised, and the lamellæ are marked with transverse lines and tinged with pink.

Tricholoma fuligineum *Pk.*

SOOTY TRICHOLOMA

(N. Y. State Mus. Rep. 41, p. 60.)

Pileus convex or nearly plane, obtuse, often irregular, dry, minutely squamulose, *sooty-brown*, flesh grayish, odor and taste farinaceous; lamellæ subdistant, uneven on the edge, cinereous *becoming blackish in drying*; stem short, *solid*, equal, glabrous, cinereous; spores oblong-elliptical, .0003 in. long, .00016 broad.

Pileus 1 to 2.5 in. broad; stem 1 to 1.5 in. long, 3 to 5 lines thick.

Among mosses in open places. Greene county. September. Rare.

Rigida

Pileus rigid, in compact species hard and somewhat cartilaginous, in thinner species very fragile, the margin naked, the pellicle of the pileus rigid, punctate granulate, or broken up when dry into small smooth scales, neither viscid, floccose-scaly nor torn into fibrils.

No representative.

Sericella

Pileus at first slightly silky, soon becoming glabrous, very dry, neither moist, viscid, hygrophanous nor distinctly scaly, rather thin, opaque, absorbing moisture, but the flesh of the same color as the lamellæ; stem fleshy, fibrous.

T. fallax and *T. infantilis* are somewhat moist in wet weather, but are placed in this group because of their manifest nearness to species belonging to it. The same is true of *T. albiflavidum*

	Pileus white or whitish, often darker on the disk or umbo	1
	Pileus some other color	5
1.	Pileus acutely umbonate	subacutum.
1.	Pileus not acutely umbonate	2
2.	Lamellæ subdistant	3
2.	Lamellæ crowded	4
3.	Plant inodorous, pileus wholly white	silvaticum.
3.	Plant with a strong odor, pileus darker on the disk	terræolens.
4.	Stem slightly bulbous	albiflavidum.
4.	Stem not at all bulbous	lascivum.
5.	Stem solid	6
5.	Stem hollow	7
6.	Lamellæ white, pileus pale tan color	lascivum.
6.	Lamellæ and pileus yellowish	chrysenteroides.
7.	Lamellæ yellow	fallax.
7.	Lamellæ whitish	infantile.

Tricholoma subacutum *Pk.*

SUBACUTE TRICHOLOMA

(N. Y. State Mus. Rep. 42, p. 16.)

Pileus at first ovate or broadly conical, then convex and *subacutely umbonate*, dry, silky and obscurely virgate with *minute innate fibrils*, *whitish*, tinged with smoky-brown or bluish-gray, darker on the umbo, flesh white, taste acrid or peppery; lamellæ rather close, slightly adnexed, white; stem equal, *stuffed or hollow*, silky-fibrillose, white; spores broadly elliptical or subglobose, .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 1.5 to 3 in. broad; stem 2 to 4 in. long, 3 to 6 lines thick.

Woods and groves. Essex county. September.

This species is perhaps too closely related to *T. virgatum*, but it is separable by its prominent subacute umbo, paler pileus, hollow stem and hot or peppery taste. The cuticle is separable from the pileus.

Tricholoma silvaticum *Pk.*

WOOD TRICHOLOMA

(N. Y. State Mus. Rep. 42, p. 17).

Pileus convex or nearly plane, dry, *glabrous*, *subumbonate*, whitish; lamellæ broad, ventricose, subdistant, adnexed, white; stem subequal, *solid*, white; spores *rather large*, elliptical, .00045 to .0005 in. long, .0003 broad.

Pileus 1 to 1.5 in. broad; stem 1 to 2 in. long, 2 to 4 lines thick.

Mossy ground in woods. Essex county. September.

The whole plant is white or whitish, as in *T. leucocephalum*, from which it is separated by its subdistant lamellæ, somewhat umbonate pileus and by the absence of any farinaceous odor.

Tricholoma terræolens *Pk.*

EARTH-SMELLING TRICHOLOMA

(N. Y. State Mus. Rep. 38, p. 84.)

Pileus thin, convex or nearly plane, slightly silky-fibrillose, whitish with a brownish or grayish-brown slightly prominent disk, *taste and odor strong, unpleasant;* lamellæ subdistant, emarginate, white: stem equal, slightly silky, shining, *stuffed or hollow*, white: spores subglobose or broadly elliptical, .00025 to .0003 in. long, .0002 to .00025 broad.

Pileus 10 to 15 lines broad: stem 1 to 1.5 in. long, about 2 lines thick.

Under ground hemlock, *Taxus Canadensis*. Saratoga county. September.

The species is related to *T. inamœnum*, from which it is separated by its smaller size, less distant lamellæ, stuffed or hollow stem and different odor. Nor is the stem radicating or the disk tinged with yellow as in that species. The odor is decidedly earthy, resembling that of vegetable mold or mossy rocks. Its taste is similar to its odor and remains in the mouth and throat a long time.

Tricholoma lascivum *Fr.*

DISGUSTING TRICHOLOMA

(Hym. Europ., p. 65, Syl. Fung., Vol. V., p. 112.)

Pileus fleshy, convex or nearly plane, obtuse, at length somewhat depressed, silky, then glabrous, even, whitish or pale tan color, the margin at first involute, flesh white; lamellæ adnexed, thin, *crowded, white;* stem solid, equal, rigid, *rooting and tomentose at the base*, fibrillose, white; spores .0003 to .0004 in. long, .00014 broad.

Pileus 1 to 2 in. broad; stem 2 in. long, 2 to 4 lines thick.

Open places. Albany county., September.

The European plant has the pileus pallid-tan color and has a strong odor. In our plant there was no marked odor and the pileus was nearly white.

Tricholoma albiflavidum *Pk.*

YELLOWISH-WHITE TRICHOLOMA

(N. Y. State Cabinet Rep., 23, p. 75.)

Pileus fleshy, convex, becoming plane or slightly depressed, glabrous, even, *white sometimes tinged with yellow*, the margin at first involute, flesh white; lamellæ narrow, crowded, thin, emarginate, white; stem equal, solid, fibrillose-striate, *somewhat bulbous*, whitish; spores elliptical, .0003 to .00035 in. long, .00016 to .0002 broad.

Pileus 2 to 3 in. broad; stem 3 to 4 in. long, 3 to 4 lines thick.

Woods and fields. Essex and Rensselaer counties. August.

This species is very closely allied to the preceding one of which it is perhaps only a variety. It is separable by the pileus which varies in color from white to yellowish and by the stem which is slightly bulbous thickened at the base but not radicated. The stem is generally very slender in proportion to the size of the pileus. This is sometimes slightly and broadly umbonate. In very wet weather the pileus is moist but the species has been placed here because of its affinity with *T. lascivum.*

Tricholoma chrysenteroides *Pk.*

GOLDEN-FLESH TRICHOLOMA

(N. Y. State Mus. Rep. 24, p. 60.)

Pileus fleshy, convex or plane, not at all umbonate, firm, dry, glabrous or slightly silky, *pale-yellow or buff*, becoming dingy with age, the margin sometimes reflexed, *flesh pale-yellow, taste and odor farinaceous;* lamellæ rather close, emarginate, yellowish, becoming dingy or pallid with age, *marked with transverse veinlets along the upper edge*, the interspaces venose; stem equal, firm, *solid*, glabrous, fibrous-striate, yellowish without and within; spores elliptical, .0003 to .0004 in. long, .0002 to .00024 broad.

Pileus 1 to 2 in. broad; stem 2 to 3 in. long, 3 to 4 lines thick.

Woods. Lewis and Cattaraugus counties. September.

Nearly allied to *T. chrysenterum*, but separable by the lamellæ, which are somewhat veiny and not free, by the entire absence of an umbo and by its farinaceous odor and taste.

Tricholoma fallax *Pk.*

FALLACIOUS TRICHOLOMA

(N. Y. State Mus. Rep. 25, p. 74. Plate 1, figs 5 to 8.)

Pileus firm, convex or nearly plane, rarely centrally depressed, moist in wet weather, glabrous, dull saffron, subochraceous or reddish yellow, flesh yellowish when dry; lamellæ narrow, close, tapering outwardly, rounded behind, *yellow;* stem short, glabrous, slightly tomentose at the base, equal or tapering downward, *stuffed or hollow*, colored like the pileus; spores minute, elliptical, .00012 to .00016 in. long.

Pileus 6 to 15 lines broad; stem about 1 in. long, 1 to 2 lines thick.

Under spruce and balsam trees. Essex, Lewis, Herkimer and Onondaga counties. August and September.

This pretty little agaric is liable to be mistaken for a species of Naucoria, because of its peculiar colors, but its spores are white. It is apparently closely related to *T. cerinum*, but the pileus of that species is described as very dry, the flesh white and the stem glabrous at the base, characters which are not well shown by our plant. Because of its affinity to *T. cerinum* it has been placed in the tribe Sericella notwithstanding its pileus is moist in wet weather.

Tricholoma infantile *Pk.*

INFANTILE TRICHOLOMA

(Bulletin N. Y. State Mus., Vol. 1, Number 2.)

Pileus thin, convex or nearly plane, even, minutely silky, *moist in wet weather, reddish-gray*, the margin at first incurved and whitish: lamellæ subdistant, plane or slightly ventricose, often eroded on the edge, whitish; stem short, equal or tapering upward, hollow, slightly silky, colored like the pileus or a little paler: spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 broad, often containing a shining nucleus.

Pileus 4 to 12 lines broad; stem 1 to 1.5 in. long, 1 to 2 lines thick.

Gravelly soil in fields. Rensselaer county. June.

This small species is apparently related to *P. cælatum*, from which it is separated by its pileus which is not at all umbilicate, but on the other hand is sometimes papillate. The stem is fleshy-fibrous and hollow but its cavity is very small. In the larger specimens the margin of the pileus is often wavy or irregular and the edge of the lamellæ eroded. This and the preceding species by being somewhat moist in wet weather form a transition to the next Series.

SERIES B

Pileus glabrous, either watery-spotted, moist or hygrophanous, not viscid, its flesh very thin or becoming soft or spongy; veil pruinose.

Guttata

Pileus fleshy, soft, fragile, spotted as if by drops or rivulose; stem solid. Mostly vernal, growing in troops or cæspitose.

No representative.

Spongiosa

Pileus compact, becoming spongy, fleshy quite to the margin, obtuse, even, glabrous, moist; stem stout, fibrous-spongy, commonly thickened at the base; lamellæ at length spuriously but sinuately decurrent.

Mostly autumnal, growing in troops. *T. album. T. nobile* and *T. laterarium*, though having the pileus dry, are placed in this group because of their affinities and their agreement with it in other respects.

Lamellæ reticulately connected	patulum.
Lamellæ distinct	1
1. Pileus wholly white or white tinged with yellow rust color	2
1. Pileus some other color	6
2. Stem hollow	leucocephalum.
2. Stem solid	3
3. Margin of the pileus with subdistant short radiating ridges	laterarium.
3. Margin of the pileus even	4
4. Lamellæ changing color with age	grave.
4. Lamellæ not changing color	5
5. Pileus glabrous	album.
5. Pileus minutely squamulose	nobile.
6. Lamellæ at first violaceous	personatum.
6. Lamellæ at first white or whitish	7
7. Lamellæ becoming tawny or subochraceous	grave.
7. Lamellæ not assuming this color	8
8. Pileus greenish	virescens.
8. Pileus smoky-yellow	fumosiluteum.
8. Pileus whitish tinged with brown	fumidellum.

Tricholoma patulum *Fr.*

WIDE TRICHOLOMA

(Hym. Europ. p. 69. Syl. Fung., Vol. v, p. 125. *Clitocybe patuloides.* N. Y. State Mus. Rep., 32, p. 25.)

Pileus fleshy, firm, convex or plane, obtuse, often repand, even, glabrous, pale cinereous inclining to yellowish, flesh white; lamellæ emarginate, crowded, *reticulately connected*, white; stem thick, solid, firm, equal, elastic, glabrous, white or whitish; spores subglobose or broadly elliptical, .00025 to .0003 in. long.

Pileus 1 to 4 in. broad; stem 2 to 3 in. long, 4 to 10 lines thick.

Thin woods and groves. Onondaga county. September.

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The American plant differs slightly from the description of the European, in having the lamellæ somewhat decurrent, and on this account it was formerly referred to the genus Clitocybe and described as distinct. The spore characters here given are taken from the American plant.

Tricholoma album *Schæff.*

WHITE TRICHOLOMA

(Hym. Europ., p. 70. Syl. Fung., Vol. v, p. 127.)

Pileus fleshy, tough, convex, becoming plane or depressed, obtuse, very dry, even, *glabrous, white*, sometimes yellowish on the disk, rarely wholly yellowish, the margin at first involute, flesh white, taste *acrid or bitter;* lamellæ emarginate, somewhat crowded, distinct, white; stem solid, elastic, equal or tapering upward, externally fibrous, obsoletely pruinose at the apex, white; spores elliptical, .0002 to .00025 in. long.

Pileus 2 to 4 in. broad; stem 2 to 4 in. long, 4 to 6 lines thick.

Woods. Common. Albany, Essex, Herkimer, Cattaraugus and Greene counties. August to October.

This species is variable in color and in size, being sometimes robust, sometimes slender. It grows singly, in troops or in tufts. It has no decided odor but a bitter unpleasant taste. It departs from the character of the tribe in having the pileus quite dry and on this account, as Fries remarks, it might perhaps be better placed in the tribe Sericella. The same remark is applicable to the two following species. The variety *cæsariatus* differs from the typical form in having the pileus thin, and at first silky, the lamellæ almost free and the slender fragile stem somewhat pruinose at the apex. *T. alboides*, Report 32, p. 25, apparently belongs to this variety.

Tricholoma nobile *Pk.*

NOBLE TRICHOLOMA

(N. Y. State Mus. Rep. 42, p. 17.)

Pileus fleshy, convex or nearly plane, dry, *minutely punctate or squamulose with innate fibrils*, whitish or tinged with yellow, flesh white, taste unpleasant; lamellæ broad, rather close, *rounded behind and slightly adnexed*, white, slowly changing to pale yellow where wounded; stem equal, solid, slightly floccose-pruinose, whitish; spores minute, subglobose, .00016 to .0002 in. broad.

Pileus 2 to 4 in. broad; stem 1.5 to 2.5 in. long, 4 to 8 lines thick.

Woods. Essex county. September.

This plant might easily be mistaken for *T. album*, so close is the resemblance between them, and yet it is quite distinct by its minute though rather obscure squamules, the insertion of the lamellæ and the subglobose spores. Its taste is very unpleasant and leaves a burning sensation in the mouth and throat for a long time.

Tricholoma laterarium *Pk.*

SIDE-MARKED TRICHOLOMA

(N. Y. State Mus. Rep., 26, p. 51.)

Pileus convex or nearly plane, sometimes slightly depressed in the center, pruinose, whitish, the *disk often tinged with brick-red or brown*, the thin *margin marked with slight, subdistant, short radiating ridges*, flesh white; lamellæ narrow, crowded, emarginate, decurrent in slight lines, white; stem nearly equal, solid, white; spores globose, .00018 in. broad.

Pileus 2 to 4 in. broad; stem 2 to 3 in. long, 3 to 5 lines thick.

Woods. Otsego and Oneida counties. June and July.

It resembles some forms of *T. album*, but is separable by the markings on the margin of the pileus and by its globose spores.

Tricholoma leucocephalum, *Fr.*

WHITE-CAP TRICHOLOMA

(Hym. Europ., p. 71. Syl. Fung., Vol. v. p. 128.)

Pileus fleshy, thin, tough, convex or plane, obtuse or obtusely umbonate, even, moist, at first *minutely silky, then glabrous, white*, the margin spreading, naked, flesh white, odor farinaceous; lamellæ thin, crowded, rounded behind, free, white; stem *hollow, glabrous, rooting* at the narrowed solid base, subcartilaginous, white.

Pileus 1 to 2.5 in. broad; stem 1 to 2 in. long; 2 to 4 lines thick.

Pine groves. Green county. September.

European authors do not agree in the dimensions ascribed to the spores of this species. In Sylloge Fungorum they are said to be .00036 to .0004 in. long, .00028 to .00032 broad, and according to Lanzi they are .0002 to .00024 in. long, .00016 broad. In our plant they are of the latter dimensions.

Tricholoma fumidellum, *Pk.*

LITTLE-SMOKY TRICHOLOMA

(N. Y. State Mus. Rep. 26, p. 52.)

Pileus convex, then expanded, subumbonate, glabrous, moist, *dingy-white or clay-color clouded with brown*, the disk or umbo generally smoky-brown; lamellæ crowded, subventricose, whitish;

stem equal, glabrous, *solid*, whitish; spores minute, subglobose, .00018 in. long, .00015 broad.

Pileus 1 to 2 in. broad; stem 1.5 to 2.5 in. long, 2 to 3 lines thick.

Woods: Albany county and Catskill Mountains. September and October.

The stem splits easily and the pileus becomes paler in drying. It sometimes becomes rimose-areolate.

Tricholoma virescens *Pk.*

GREENISH TRICHOLOMA

(N. Y. State Mus. Rep. 25, p. 74. *Agaricus viriditinctus*, Rep. 33, p. 36. *Tricholoma viriditinctum*, Syl. Fung., Vol. V., p. 128.)

Pileus convex or nearly plane, sometimes centrally depressed, moist, glabrous, *dingy-green*, the margin sometimes wavy or lobed; lamellæ close, gradually narrowed toward the outer extremity, rounded or slightly emarginate at the inner, white; stem subequal, *stuffed or hollow*, thick but brittle, whitish, sometimes tinged with green; spores broadly elliptical, .0002 in. long, .00015 broad.

Pileus 3 to 5 in. broad; stem 3 to 4 in. long, 6 to 12 lines thick.

Thin woods. Essex county. July.

The dull smoky-green hue of the pileus is the distinguishing feature of this species. The elevation of the Friesian subgenera to generic rank enables me to restore the original name of this species, for *Agaricus virescens* B. and C., which antedated it, now becomes *Leptonia virescens*.

Tricholoma fumosiluteum *Pk.*

SMOKY-YELLOW TRICHOLOMA

(N. Y. State Mus. Rep. 27, p. 92.)

Pileus fleshy, convex or nearly plane, moist, glabrous, *smoky-yellow*, flesh white, tinged with yellow under the cuticle, taste farinaceous; lamellæ broad, close, rounded behind and deeply emarginate, white; stem stout, glabrous, hollow, white, spores subglobose, .00018 to .00024 in. in diameter.

Pileus 2 to 3 in. broad; stem 3 to 4 in. long, 4 to 6 lines thick.

Woods. Sullivan, Cattaraugus, Ulster and Greene counties. September.

The flesh, when cut, emits a farinaceous odor. The plant sometimes grows in tufts. In size and general character it is related to *T. virescens* so closely that it might easily be regarded as a mere yellowish variety of it. The disk of the pileus is often darker than the margin, and the pileus is sometimes spotted.

Tricholoma personatum *Fr.*

MASKED TRICHOLOMA

(Hym. Europ. p. 72. Syl. Fung., Vol. V. p. 130.)

Pileus compact, becoming soft, thick, convex or plane, obtuse, regular, moist, glabrous, variable in color, generally pallid or cinereous tinged with violet or lilac, the margin at first *involute and villose-pruinose*, flesh whitish; lamellæ broad, crowded, rounded behind, free, *violaceous becoming sordid-whitish or fuscous;* stem generally thick, subbulbous, solid, fibrillose or villose-pruinose, whitish or colored like the pileus; spores *sordid-white*, subelliptical, .0003 to .00035 in. long, .00016 to .0002 broad.

Pileus 2 to 5 in. broad; stem 1 to 3 in. long, 6 to 12 lines thick.

Woods and open places. Common. Albany, Rensselaer, Greene, Delaware, Cattaraugus and Madison counties. September and October.

This species is quite variable in color, but easily recognized after it is known. The pileus is rarely whitish or cinereous, but usually it exhibits dull violaceous or dingy lilac or fuscous hues and the lamellæ are somewhat similar in color. The lamellæ are separable from the hymenophore and the species has for this reason sometimes been placed in the genus Lepista. A form occurs in which the stem is decidedly bulbous, and there is also a small form scarcely attaining the dimensions given above. It grows either singly or in troops, rarely in tufts. It is an edible species with tender and well-flavored flesh.

Tricholoma grave *Pk.*

HEAVY TRICHOLOMA

(N. Y. State Mus. Rep. 43, p. 17.)

Pileus at first hemispherical, then convex, compact, glabrous, *grayish-tawny* and somewhat spotted when moist, paler when dry, the margin paler, irregular, involute, covered with a minute close grayish-white tomentum or silkiness, flesh grayish-white; lamellæ sub-distant, rounded behind or sinuate, adnexed, at first *whitish, then pale-ochraceous or tawny;* stem stout, compact, solid, subsquamulose, grayish-white, penetrating the soil deeply; spores broadly elliptical, .0003 in long, .0002 broad.

Pileus 5 to 8 in. broad; stem 4 in. long, 1 to 1.5 in. thick.

Mixed woods. Suffolk county. September.

This species is remarkable for its great size and weight. It is apparently allied in this respect to *T. Colossus*, from which it is separated by the absence of any viscidity of the pileus, by the radicating character of the base of the stem and by the flesh not assuming a reddish color. Its moist pileus places it among the Spongiosi rather than the Limacini among which *T. Colossus* is placed.

Hygrophana

Pileus thin, subumbonate, hygrophanous, the flesh at first compact, then soft, very thin toward the margin, moist or watery.

Stem solid or stuffed 1
Stem hollow 4
1. Lamellæ whitish, often tinged with brown or violaceous 2
1. Lamellæ white or yellowish 3
2. Stem less than one inch long .... brevipes.
2. Stem one inch or more in length .... sordidum.
3. Stem white .... Trentonense.
3. Stem not white .... microcephalum.
4. Pileus some shade of red 5
4. Pileus grayish or brownish 6
5. Lamellæ whitish .... Sienna.
5. Lamellæ alutaceous .... thujinum.
6. Lamellæ cinereous .... putidum.
6. Lamellæ yellowish .... Hebeloma.

Tricholoma brevipes *Bull.*

SHORT-STEMMED TRICHOLOMA

(Hym. Europ., p. 75. Syl. Fung., Vol. V, p. 135.)

Pileus fleshy, convex becoming plane, rigid, then soft, glabrous, umber or isabelline, becoming pale with age; lamellæ close, ventricose, emarginate, fuscous becoming whitish; stem *very short, solid*, firm, rigid, somewhat thickened at the base, *fuscous*; spores elliptical, .0003 in. long, .0002 broad.

Pileus 1 to 2 in. broad; stem 6 to 9 lines long, 2 to 3 lines thick. Fields and gardens. Albany county. October.

Tricholoma sordidum *Fr.*

SORDID TRICHOLOMA

(Hym. Europ., p. 77. Syl. Fung., Vol. V, p. 139.)

Pileus thin, campanulate or convex, then plane or centrally depressed, sometimes with a small umbo, often irregular or eccentric, glabrous, hygrophanous, brown with a reddish or violaceous tint and striatulate on the margin when moist, sordid or subcinereous when dry, flesh white; lamellæ thin, moderately close, rounded or sinuately and slightly decurrent, violaceous whitish or fuliginous; stem equal or slightly thickened at the base, solid or stuffed, fibrillose-striate, colored like the pileus, white within; spores elliptical. .00024 to .0003 in. long, .00016 to .0002 broad.

Pileus 1 to 2 in. broad; stem 1.5 to 2 in. long, 2 to 3 lines thick.

Manured ground. Albany county. May.

It sometimes grows in a crowded subcæspitose manner. It has a peculiarly sordid appearance and a strange admixture of colors difficult to describe.

Tricholoma Trentonense *Pk.*

TRENTON TRICHOLOMA

(N. Y. State Mus. Rep. 24, p. 60.)

Pileus thin, convex or nearly plane, often irregular, glabrous or subvirgate, hygrophanous, slightly striatulate on the margin when moist, dingy-white, the disk generally brown; lamellæ very narrow, crowded, slightly emarginate, white inclining to yellowish; stem short, equal, *solid*, slightly striate, *white;* spores .0002 in. long, .00016 broad.

Pileus 1 to 2 in. broad; stem 1 to 1.5 in. long, 3 to 5 lines thick.

Woods on the ground or on decaying wood. Oneida county. September. The plant is gregarious or subcæspitose. It has not been found since its discovery in 1870.

Tricholoma microcephalum *Karst.*

SMALL-CAP TRICHOLOMA

(Syl. Fung., Vol. V, p. 135.)

Pileus fleshy, thin, sooty-livid, when dry isabelline-livid; lamellæ adnexed, very crowded, soft, white; stem tall, stuffed, equal, naked, striatulate, becoming pallid; spores subglobose .0002 to 00024 in. long, .0002 broad.

Pileus 9 to 14 lines broad; stem 2 to 3 in. long, 1 to 2 lines thick.

Meadows and pastures. Essex county. September.

Our specimens do not agree fully with the above description. In color they correspond very closely with the figures of *T. melaleucum* in Mycological Illustrations, but the spore characters agree better with those ascribed to *T. microcephalum.*

Tricholoma Sienna *Pk.*

YELLOWISH-RED TRICHOLOMA

(N. Y. State Rep. 24, p. 60.)

Pileus rather thin, convex then plane or slightly depressed, glabrous, hygrophanous, obscurely striatulate on the extreme margin when moist, *yellowish-red;* lamellæ moderately close, whitish; stem equal, glabrous, *hollow, colored like the pileus:* spores elliptical, .00024 to .0003 in. long, .00016 to .0002 broad.

Pileus 1 to 2 in. broad; stem 2 to 3 in. long, 3 to 4 lines thick.

Woods. Lewis county. September.

Not found since its discovery in 1870.

Tricholoma thujinum *Pk.*

ARBOR-VITÆ TRICHOLOMA

(N. Y. State Mus. Rep. 26, p. 52.)

Pileus convex or centrally depressed, glabrous, hygrophanous, pale-alutaceous, the margin generally irregular wavy or lobed; lamellæ crowded, thin, abruptly emarginate, *alutaceous;* stem slightly thickened at the top, glabrous, hollow, colored like the pileus, whitish-villose at the base; spores minute, .00016 in. long, about half as broad.

Pileus 1 to 2 in. broad: stem 1 to 1.5 in. long, 2 to 3 lines thick.

Swampy ground under trees of arbor-vitæ. *Thuja occidentalis* Onondaga county. July.

Not found since its discovery in 1872.

Tricholoma putidum *Fr.*

STRONG-SMELLING TRICHOLOMA

(Hym. Europ., p. 78. Syl. Fung., Vol. V, p. 140.)

Pileus somewhat fleshy, hemispherical, umbonate, even, soft, hygrophanous, somewhat olivaceous-gray when moist, hoary when dry, occasionally sprinkled with a white silkiness, odor like that of rancid meal: lamellæ adnexed, appearing free, ventricose, crowded, *cinereous;* stem hollow, soft, fragile, fibrous, equal or subcompressed, pruinose, grayish: spores .0003 to .0004 in. long, .00016 broad.

Pileus about 1 in. broad: stem 1 to 2 in. long, 2 to 3 lines thick.

Pine groves. Greene county. September.

In the New York specimens the pileus is not umbonate, but in other respects they agree well with the description of the species.

Tricholoma Hebeloma *Pk.*

HEBELOMA-LIKE TRICHOLOMA

(N. Y. State Mus. Rep. 26, p. 53.)

Pileus thin, broadly conical or subcampanulate, obtuse, hygrophanous, brown with a darker disk and striatulate on the margin when moist, grayish when dry; lamellæ broad, rounded behind and deeply emarginate, adnexed, *yellowish;* stem equal, hollow, glabrous, pallid; spores .00025 in. long, .00016 broad.

Pileus about 5 lines broad; stem 1 in. long, about 1 line thick.

Woods. Otsego county. July.

Agaricus hordus, Rep. 25, p. 73, and *Agaricus præfoliatus*, Rep. 32, p. 55, are both referable to *Collybia platyphylla*, Fr. as large fleshy-stemmed forms.

Agaricus multipunctus, Rep. 25, p. 73, is scarcely distinct from *Clitocybe decora* Fr. and is therefore omitted here.

Agaricus Schumacheri, Rep. 24, p. 60, proves to be a form of *Clitocybe nebularis* Batsch.

Agaricus limonium, Rep. 26, p. 52, is referable to *Collybia scorzonerea* Batsch.

Agaricus lacunosus, Rep. 26, p. 51, has a very tough substance and must be referred to Collybia.

Agaricus rubescentifolius, Rep. 39, p. 38, has also been shown by later observations to be a species of Collybia and now stands as *Collybia rubescentifolia.*

(F)

FUNGI OF MARYLAND

The fungi recorded in the following pages have been found in Maryland, and most of them have been illustrated and described in a large manuscript volume by Mary E. Banning of Baltimore, Maryland. This volume she has most generously donated to the New York State Museum, and it has been made the basis of the following enumeration. Nearly all the species represented in the volume belong to the larger fleshy fungi and are included among the Hymenomycetes and Gasteromycetes. Of these, 14 have been described as new species and these descriptions have been here transcribed for publication that they may thereby be made more accessible to students of mycology. Remarks have also been freely quoted from the volume when they seemed to have especial interest or scientific value. The name of each species is followed by the name of the locality where it was found, except in the case of very common ones, and by the number of the plate on which it is figured. In some instances different forms or varieties of one species are figured on different plates. The old subgenera of the former genus Agaricus are here raised to generic rank, according to the plan of Sylloge Fungorum.

Amanita rubescens *Pers.*	Druid Hill Park	Plate	1
“ “	Eastern Maryland	Plate	2
“ “	Halls Spring near Baltimore	Plate	3

“Found in woods in every section of Maryland from July until September, but very variable in size as well as in depth of color. Plate 2 represents plants collected in Eastern Maryland in 1870, also in woods near Halls Spring, Baltimore county. Its spores are globose.”

The plants represented on Plate 2 also have the stem beautifully and distinctly adorned below the annulus with red scales. These and the globose spores indicate that the plant is worthy of distinction as a variety if not as a species.

Amanita muscaria *L.*	Eastern Maryland	Plate	4
“ “		Plate	5
“ “		Plate	6
“ “		Plate	7

Plate 4 represents a large form with pileus yellow; plate 6 a small form with pileus brownish, thereby approaching variety *umbrina;* plate 7 represents a form wholly white.

“I have found the scarlet form in the primeval forests of the eastern shore of Maryland. The white form is not so common as those with a yellow pileus.”

Amanita solitaria *Bull.*	Carroll county	Plate	8
Amanita strobiliformis *Vitt.*	Druid Hill Park	Plate	9

“I found this plant during the great drought of 1879. The earth was dry and hard, yet some of the plants had reached a very large size. * * * They grew near a spring, which may account for the perfection of the plants. * * * The odor from them was delightful, somewhat resembling that of our edible *A. campestris*, but more powerful. The aroma from the bulb is even greater than from the pileus.”

Amanita nitida, *Fr.*	Halls Spring	Plate	10

“Common in nearly every woods in Maryland.”

Amanita phalloides *Fr.*	Common	Plate	11
Amanita verna *Bull.*	Druid Hill Park	Plate	12
Amanita spissa *Fr.*	Carroll county	Plate	174

“I have referred this plant to *A. spissa* because it so closely agrees with the description of that species as given in all the books. It must be the American form of that plant. * * * Spores white, globose or subglobose, .00024 inch. The spore measure does not agree with W. G. Smith's measurement which is .0005 in. long, pear shaped or balloon shaped, with a short stalk.”

Amanita pellucidula *n. sp.* Baltimore .... Plate 15

"Pileus at first campanulate, then expanded, slightly viscid, fleshy in the center, attenuated at the margin, smooth, bright red, deeper at the top, shaded into clear transparent yellow at margin, glossy, flesh white, unchanging; lamellæ ventricose, free, numerous, yellow; ring descending, fugacious; stem stuffed. I have named this plant 'pellucidula' because of its bright color. I could not get the spore measure. It has not appeared since July, 1877. I am now, August 20, 1888, under the impression that it is an aborted form or variety of *Amanita cœsarea* Scop. I have met with several like it, near or in company with more perfect larger forms. The stem is white in most cases, or very pale cream color, always ventricose. Spores the same as those of *A. cœsarea.*"

The plant figured differs from the true *A. cœsarea* in its brilliantly colored pileus with even margin and in the white stem.

Amanita cæsarea *Scop.* Common .... Plate 16
" " .... Plate 17
" " .... Plate 18

"This plant varies greatly in color. Sometimes the pileus is bright scarlet with yellow margin, then burnt sienna color with yellowish margin. It varies also in size. It generally appears in July and continues until the last of August, and even into September. Its taste is not disagreeable. * * * There is not one doubt that this fungus can be eaten with impunity. The taste is mild and pleasant, it has no disagreeable odor, and it is plentiful."

Amanitopsis vaginata *Bull.* Druid Hill Park .... Plate 13
" " .... Plate 14

"For three successive years I found this fungus in Druid Hill Park in one spot, on or about the fifteenth of July. In 1878 it was missing there, but appeared plentiful in a distant wood. In 1880 it again made its apperance in Druid Hill Park, on the fifteenth of July, and under the same tree. There was not the slightest variation in the size or color of the plants that appeared under this tree during the first three years, neither in 1880."

Amanitopsis volvata *Peck.* Baltimore .... Plate 19
Lepiota Americana *Peck.* Druid Hill Park .... Plate 20
" " Carroll county .... Plate 22

"This figure is from plants found in Carroll county, Maryland. They were plentiful in lawns and gardens, and much larger and more perfect than those found in Druid Hill Park. The pileus is not so red, the margin is plicate and the flesh turns red when cut or bruised, but it does not exude a red juice like the others."

The plants represented on Plate 20 approach very closely to *Lepiota Badhami* B. & Br. but are brighter colored than it.

Lepiota procera *Scop.* Druid Hill Park .... Plate 21
Lepiota cepæstipes *Sow.* Carroll county .... Plate 23
Lepiota rubrotincta *Peck.* Carroll county .... Plate 24
" " Carroll county .... Plate 25
Lepiota cristata *A. & S.* Carroll county . ... Plate 26
Armillaria mellea *Vahl.* Common .... Plate 27
" " .... Plate 28
" " .... Plate 171
" " .... Plate 172

"Plate 28 represents a form with smooth pileus, the most common form in Maryland. It abounds at the roots of trees, on old stumps, in the corners of old fences, in fact everywhere where there is old wood. The taste is not so nauseous as some represent it, yet it reveals the fact that deception may lurk under a pleasant title, 'the honey agaric.' * * One taste led me to suspect it was a wolf in sheep's clothing."

Tricholoma rancidulum *n. sp.* Druid Hill Park ... . Plate 29

"Pileus 6 to 8 inches across, dry, sometimes marked with rugose lines, glossy, white with a tinge of ochre at the disk, flesh white, brittle, margin striate, sometimes sinuate, then regular, odor very disagreeable; lamellæ slightly decurrent, at first nearly white, then dingy pinkish or brownish ochre, narrow, brittle, separated from the pileus by a touch, close, forked; stem white or dingy white, brownish at base, curved, stuffed, elastic, nearly equal, smooth; spores .00016 x .0002 inch, white.

"In woods. Gregarious. It grows chiefly in vegetable mold."

Tricholoma cellare *Banning* Baltimore .... Plate 30
Tricholoma subdurum *n. sp.* Druid Hill Park .... Plate 31

"Pileus at first hemispherical, then expanded, white, turning dark in age, margin more or less waved, flesh hard, tough; lamellæ yellow, adnexed, close, forked; stem stout, 2.5 inches high, enlarged at base, attenuated upward, white, solid.

"In woods. October, 1875."

Tricholoma Brownei *Banning.* Common .... Plate 32
Tricholoma magnum *n. sp.* Baltimore .... Plate 33

"Pileus at first hemispherical, then expanded, 6 inches broad, fleshy, smooth, silky, cream color, flesh white, firm; lamellæ adnate, emarginate, not crowded, at first white, turning pale salmon or cream color; stem at first solid, then hollow, short, tapering at the base."

Tricholoma nudum *Bull.*	Baltimore	Plate 34
Tricholoma edurum *n. sp.*	“	Plate 35

“Pileus at first convex, obtuse, thick, fleshy, undulating, hygrophanous, in age expanded, with a slight central depression, margin at first involute, expanding unequally, sometimes lobed, at first dingy white or alutaceous, deepened in shade at the apex, epidermis thin, easily separable; lamellæ white or cream color, adnexed, not crowded except at the margin, easily separable from the flesh of the pileus; stem white, firm, thickened at base, tapering toward the top, sometimes nearly equal, at first solid, then stuffed; spores nearly globose, white, .00025 to .0003 in. broad.

“Pileus 4 to 5 in. across; stem 3 to 4 in. long.

“Taste mild, odor pleasant but powerful, resembling that of our edible mushroom, *A. campestris*. Gregarious.”

Tricholoma personatum *Fr.*	Baltimore	Plate 37
Clitocybe illudens *Schw.*	Anne Arundel county	Plate 173
“ “	Howard county	Plate 38
Clitocybe trullisata *Ellis.*	Baltimore county	Plate 39
“ “		Plate 40
Clitocybe infundibuliformis *Schœff.*	Druid Hill Park	Plate 41
Clitocybe amethystina *Bolt.*	Druid Hill Park	Plate 42

“This is the amethystine variety of *Clitocybe laccata*. The spores are the same in size and color, though the pileus differs greatly in appearance.”

Clitocybe laccata *Scop.*	Druid Hill Park	Plate 43
“ “	Halls Spring	Plate 44
“ “	“	Plate 154

“Plate 154 shows this plant with a zoned pileus. Rev. J. Stevenson speaks truly when he calls it ‘a most provoking agaric.’ At first I thought I had in it a new species, but upon close examination I found that *C. laccata* had taken a freak to come out in a decidedly zoned dress. This is the third drawing in this book showing the variations in this plant.”

Clitocybe odora *Bull.*	Baltimore	Plate 45
Clitocybe aquatica *n. sp.*	Druid Hill Park	Plate 46

“Pileus at first obtuse, then expanded, pale ochre, often flesh color, depressed in the center, sprinkled with floccose evanescent scales, margin waved and slightly striate; lamellæ narrow, decurrent, not crowded, forked, ochraceous; stem 6 to 7 inches long, densely cæspitose, stuffed, elastic, attenuated at base, enlarged at the apex and striate from the lengthened lamellæ, concolorous; spores .00018x.00032 in., white.

"I have found this plant in various sections of the State and always growing in wet places in woods or by streams; thus I name it *C. aquatica*."

Collybia platyphylla *Fr*, Baltimore .... Plate 36
Collybia radicata *Relh.* Druid Hill Park .... Plate 48
Collybia siticulosa *n. sp.* Baltimore .... Plate 47

"Pileus fleshy in the center, thin at margin, at first decidedly umbonate, then depressed, margin at first involute, ochraceous; lamellæ free, not distant, dirty white or pale cream color; stem cartilaginous, hollow, twisted, flattened where it unites with the pileus, very pale ochre.

"This fungus is particularly tough and dry, so much so that it is unnecessary to submit it to the usual process for preservation. Hence its name *siticulosa*."

Collybia subrigua *n. sp.* Carroll county .... Plate 49

"Pileus convex, then expanded, sometimes broadly umbonate, then centrally depressed, dark brown at disk, ochraceous at the margin, hygrophanous, shining when dry, flesh white, margin thin, split; lamellæ white, narrow, adnate, forked, close, turning dirty white in age; stem stuffed with thready particles, nearly equal, blunt at base, flattened at the apex, twisted, striate where it meets the lamellæ, pallid; spores .00022x.00034 in. white.

"The plant was excessively hygrophanous when first collected, it then became dry and shining."

Pleurotus mitis *Pers.* Druid Hill Park .... Plate 50
Pleurotus ostreatus *Jacq.* Druid Hill Park .... Plate 51

"The flesh is hard and when eaten it requires much cooking to make it palatable. According to my own taste the 'tree oyster' is much more pleasing to the eye than to the palate. At no time have I ever been able to discover the slightest resemblance to the animal bivalve for which it is named. I have eaten it before and after cooking."

Pleurotus spathulatus *Pers.* Baltimore .... Plate 52
Pleurotus euosmus *Berk.* Druid Hill Park .... Plate 53

"I am very doubtful whether the plant figured is truly *P. euosmus* Berk. I have never met it since 1878."

The spores of the plant figured are represented as globose, rose colored, .00018 in. broad. The doubt is therefore well founded.

Pleurotus sapidus *Kalchb.* Druid Hill Park .... Plate 54
Volvaria bombycina *Schæff.* Baltimore county .... Plate 55
Volvaria parvulus *Weinm.* Western Maryland .... Plate 158
Pluteus cervinus *Schæff.* Western Maryland .... Plate 157

Clitopilus Orcella *Bull.* Baltimore county .... Plate 56

Pholiota rubecula *n. sp.* Baltimore .... Plate 57

"Pileus fleshy, dry, smooth, glossy, expanded, in age centrally depressed, subrufescent, margin involute; lamellæ adnate, not distant, reddish-brown; stem solid, equal. At the roots of trees or on the ground. July to November."

Pholiota mollicula *n. sp.* Druid Hill Park .... Plate 170

"Pileus fleshy, smooth, hygrophanous, whitish, deepened into yellow at the disk, flesh moist, even, wet so that the plant withers rapidly; lamellæ close or crowded, emarginate, white, turning cinnamon color in age; stem stuffed, then hollow, pubescent, at length smooth, white, regular; annulus large, white; spores, .0002 x .0003 in. ferruginose, somewhat irregular.

"In woods at roots of trees. The plant is difficult to dry, nearly always rapidly devoured by insect larvæ and falls out of shape from excessive moisture."

Pholiota dura *Bolt.* Frederick county .... Plate 58

Pholiota præcox *Pers.* Frederick county .... Plate 59

" " .... Plate 159

Pholiota adiposa *Fr.* Carroll county and Baltimore .... Plate 60

Inocybe subroindica *n. sp.* Frederick county........... Plate 61

"Pileus at first campanulate, obtuse, dry, cracked longitudinally, glossy, fleshy at the disk, thin at margin, flesh white or slightly pinkish; lamellæ adnate, close, forked, lanceolate, cream color, turning brownish ochre; stem nearly regular, twisted, marked with reddish fibrils, stuffed, hard, brittle.

"In open places in woods. August and September."

Inocbye lanuginosa *Fr.* Druid Hill Park.............. Plate 63

"For five years this plant appeared regularly in July and August under a group of cedar trees."

Naucoria semiorbicularis *Bull.* Baltimore .... Plate 64

Crepidotus mollis *Schœff.* Eastern Maryland........... Plate 65

Agaricus campestris *L.* Druid Hill Park .... Plate 66

Agaricus comptulus *Fr.* Eastern and Western Maryland. Plate 67

Agaricus silvaticus *Schœff.* Druid Hill Park .... Plate 68

Hypholoma appendiculatum *Bull.* Frederick county.... Plate 69

Hypholoma Candolleanum *Fr.* Frederick county....... Plate 72

Hypholoma subaquilum *n. sp.* Druid Hill Park .... Plate 155

"Pileus brown, convex, smooth, hygrophanous, often shaded into ochre at margin, veil delicate, silk-like, encircling and covering the marginal extremities of the lamellæ but forming no ring on the stem, flesh white, turning umber when cut; lamellæ adnexed or nearly free, close, forked, umber; stems cæspitose, regular, hollow, silky, white, two to three inches long; spores brown, .00016 x .0002 inch."

Hypholoma perplexum *Pk.* Baltimore .... Plate 70

This is probably a mere variety of *H. sublateritium* Schaeff.

Hypholoma fasciculare *Huds.* Baltimore .... Plate 71

Coprinus virgineus *n. sp.* Maryland .... Plate 160

"Pileus ovate, campanulate or cylindrical, pale ochre, the margin thin, torn, floccose; lamellæ narrow, close, forked, at first white, turning dark but never black, adnexed; stem three and a half inches long, stout, somewhat stuffed, attenuated where it meets the pileus, flattened, floccose; spores black.

"Cæspitose or gregarious at the roots of trees or about old stumps. Also found in Virginia.

"The plant is not rapidly deliquescent, remaining perfect for some hours."

Coprinus atramentarius *Bull.* Druid Hill Park .... Plate 71

Coprinus comatus *Fr.* Baltimore .... Plate 74

Coprinus micaceus *Fr.* Baltimore county .... Plate 75

Coprinus plicatilis *Fr.* Western Maryland .... Plate 161

Paxillus panuoides *Fr.* Maryland .... Plate 76

" " " .... Plate 77

"The two plants figured are the same in character though they differ in color and shape. Both were found on barrel hoops in the same cellar."

Hygrophorus chlorophanus *Fr.* Baltimore .... Plate 78

Lactarius alpinus *Pk.* Western Maryland .... Plate 79

Lactarius uvidus *Fr.* Eastern and Western Maryland... Plate 80

Lactarius insulsus *Fr.* " " " " ... Plate 81

Lactarius Indigo *Schw.* Baltimore county .... Plate 82

Lactarius piperatus *Fr.* Common .... Plate 83

Lactarius volemus *Fr.* Baltimore .... Plate 84

" " " .... Plate 85

"This plant was plentiful in July, 1877, and uniformly slender, as represented in plate 84. In 1878 it was also plentiful but large, as shown in plate 85. * * This plant is edible and makes an agreeable dish in the culinary department. I tried it stewed in beef gravy which it greatly improved in flavor. When eaten raw it is pleasant to the taste. Both the flesh and the milk turn brown upon exposure to the air."

Lactarius pyrogalus *Fr.* Howard and Carroll counties .. Plate 86
Russula atropurpurea *Pk.* Eastern and Western Maryland .... Plate 87
Russula fœtens *Fr.* Eastern and Western Maryland .... Plate 88
Russula viridipes *n. sp.* Baltimore .... Plate 89

"Pileus dull verdigris green somewhat mottled with a darker shade, flesh brittle, white, unchanging, taste extremely acrid, margin inflexed; lamellæ meet the stem, dingy ochre or pale buff, narrow, forked, the short ones apparently anastomosing; stem hollow, 1 to 2 inches high, tapering at base, enlarged at the apex, smooth, a brighter green than the pileus; spores .00032 in.

"This fungus has very little moisture though gathered after a heavy rain. At first I thought it was *Lactarius viridis* Fr., but there was no milk. Have not met with it since."

The figure has the appearance of *Lactarius atroviridis* Pk.

Russula emetica *Fr.* Baltimore .... Plate 90
Russula virescens *Fr.* " .... Plate 91

"Very variable in color as well as in size. Sometimes it is green as represented in the figure, then greenish ochre, or yellowish white tinged with green. It is very easy to dry except in wet weather, and even then when kept in a warm dry room."

The plant figured is a variety having a thin striate acute margin.

Russula alutacea *Fr.* Baltimore .... Plate 92

"Taste mild and agreeable. * * I have good reason for placing our American plant among the edible species, for I ate a portion without ill effect."

Russula rubra *Fr.* Baltimore .... Plate 93
Russula lepida *Fr.* Anne Arundel county .... Plate 94
Russula variata *Banning.* Baltimore .... Plate 95
Russula cinnamomea *Banning.* Baltimore .... Plate 96
Cantharellus floccosus *Schw.* Carroll county .... Plate 97
Cantharellus cibarius *Fr.* Druid Hill Park .... Plate 98
Cantharellus cinnabarinus *Schw.* Druid Hill Park ...... Plate 99
Marasmius rotula *Fr.* Carroll county .... Plate 100
Marasmius oreades *Fr.* Frederick county .... Plate 101
Lentinus lepideus *Fr.* Druid Hill Park .... Plate 102

The figure represents a form with branching stem.

Lentinus strigosus *Schw.* Knoxville .... Plate 162
Lenzites Cookei *Berk.* Maryland .... Plate 163
Panus strigosus *B. & C.* Eastern Maryland..... . .... Plate 103

Boletus ornatipes *Pk.* Baltimore .... Plate 104
Boletus Peckii *Frost.* Baltimore county .... Plate 106
" " Druid Hill Park .... Plate 113
Boletus felleus *Bull.* Baltimore .... Plate 107

"In 1886 I found this fungus in Virginia measuring 18 inches across the pileus."

Boletus ignoratus, *n. sp.* Druid Hill Park .... Plate 108

"Pileus convex, viscid, bright lemon color, marked with rugose lines of orange color, which are distributed over the pileus giving it a streaked appearance, flesh white, solid, does not change color when cut or broken, taste slightly acid; pores lemon color, moderately large, free, connected with the stem by web-like filaments; stem larger at the apex, somewhat tapering toward the base, yellow, smooth, solid; spores .00018x.00044 in."

This closely approaches *Boletus unicolor* Frost, from which it scarcely differs except in its white flesh and free tubes.

Boletus affinis *Pk.* Eastern and Western Maryland .... Plate 109
Boletus eximius *Pk.* Druid Hill Park .... Plate 110

This is *Boletus robustus* Frost, of which the name is preoccupied.

Boletus luridus *Fr.* Druid Hill Park .... Plate 111
" " Howard county .... Plate 112
Boletus Russellii *Frost.* Baltimore .... Plate 114

"One of the plants, as shown in the figure, had Polyporus splendens and what I took to be Nyctalis asterophora growing upon the pileus."

It is certainly remarkable to find two species of fungi growing upon one pileus, and that too before the pileus was much decayed.

Boletus subtomentosus *L.* Eastern and Western Maryland .... Plate 115
Boletus modestus *Pk.* Eastern Maryland .... Plate 116

"The plant figured is a monstrosity, which seemed undecided whether to remain a Boletus or to become an Agaric. Its hymenium was decidedly lamellated on one side nearly to the margin; all other sides were lamellated only as the tubes neared the reticulated stem."

Strobilomyces strobilaceus *Berk.* Baltimore county ... Plate 105

This is *Boletus strobilaceus* Scop.

Polyporus Beattiei *Banning.* Druid Hill Park .... Plate 118
Polyporus tomentosus *Fr.* Baltimore .... Plate 119

Polyporus splendens *Pk.*	Druid Hill Park	Plate 120
Polyporus applanatus *Fr.*	Baltimore	Plate 121
Polyporus cinnabarinus *Jacq.*	Baltimore county	Plate 122
Polyporus parvulus *Klotsch.*	Baltimore	Plate 123
Polyporus rimosus *Berk.*	Western Maryland	Plate 124

"Found on Acacia trees. It is valuable for retaining fire, and is much used by the colored people. One specimen will last a whole night to build fires and light their pipes."

Polyporus sulphureus *Fr.*	Baltimore county	Plate 125
Polyporus versicolor *Fr.*	Common	Plate 126
Polyporus pergamenus *Fr.*	Common	Plate 127
Polyporus nidulans *Fr.*	Druid Hill Park	Plate 128
Polyporus poripes *Fr.*	Halls Spring	Plate 129
Polyporus Curtisii *Berk.*	Druid Hill Park	Plate 130
Polyporus lactifluus *Pk.*	Druid Hill Park	Plate 131

"The flesh when cut exuded a white milk profusely."

Merulius lachrymans.	Maryland	Plate 132
Fistulina hepatica *Fr.*	Halls Spring	Plate 133
Hydnum rufescens *Pers.*	Lutherville	Plate 134

"It is found most plentiful in pine and oak woods, solitary or gregarious, often inclined to grow in circles."

Hydnum repandum *L.*	Baltimore	Plate 135
Hydnum imbricatum *L.*	Halls Spring	Plate 136
Hydnum cæspitosum *n. sp.*	Carroll county	Plate 137

"Pileus yellow or very pale ochre, dry, eccentric; aculei short, decurrent, very pale ochre; stem solid, cream color; flesh turns yellow when cut.

"It grows in clusters at the roots of trees and near old stumps."

Irpex lacteus *Fr.*	Maryland	Plate 164
Craterellus pistillaris *Schæff.*	Druid Hill Park	Plate 138
Craterellus cornucopioides *Fr.*	Druid Hill Park	Plate 139
Corynites Ravenlii *B. & C.*	Baltimore county	Plate 140

"This plant is now placed in the genus Mutinus."

Phallus Dæmonum *Rumph.*	Druid Hill Park	Plate 141
Phallus impudicus *L.*	Druid Hill Park.	Plate 142
Geaster fimbriatus.	Baltimore	Plate 143
Geaster saccatus *Fr.* Geaster striatus *DC.* Geaster triplex *Jungh.*	Frederick county	Plate 166
Lycoperdon cyathiforme *Bosc.*	Maryland	Plate 144

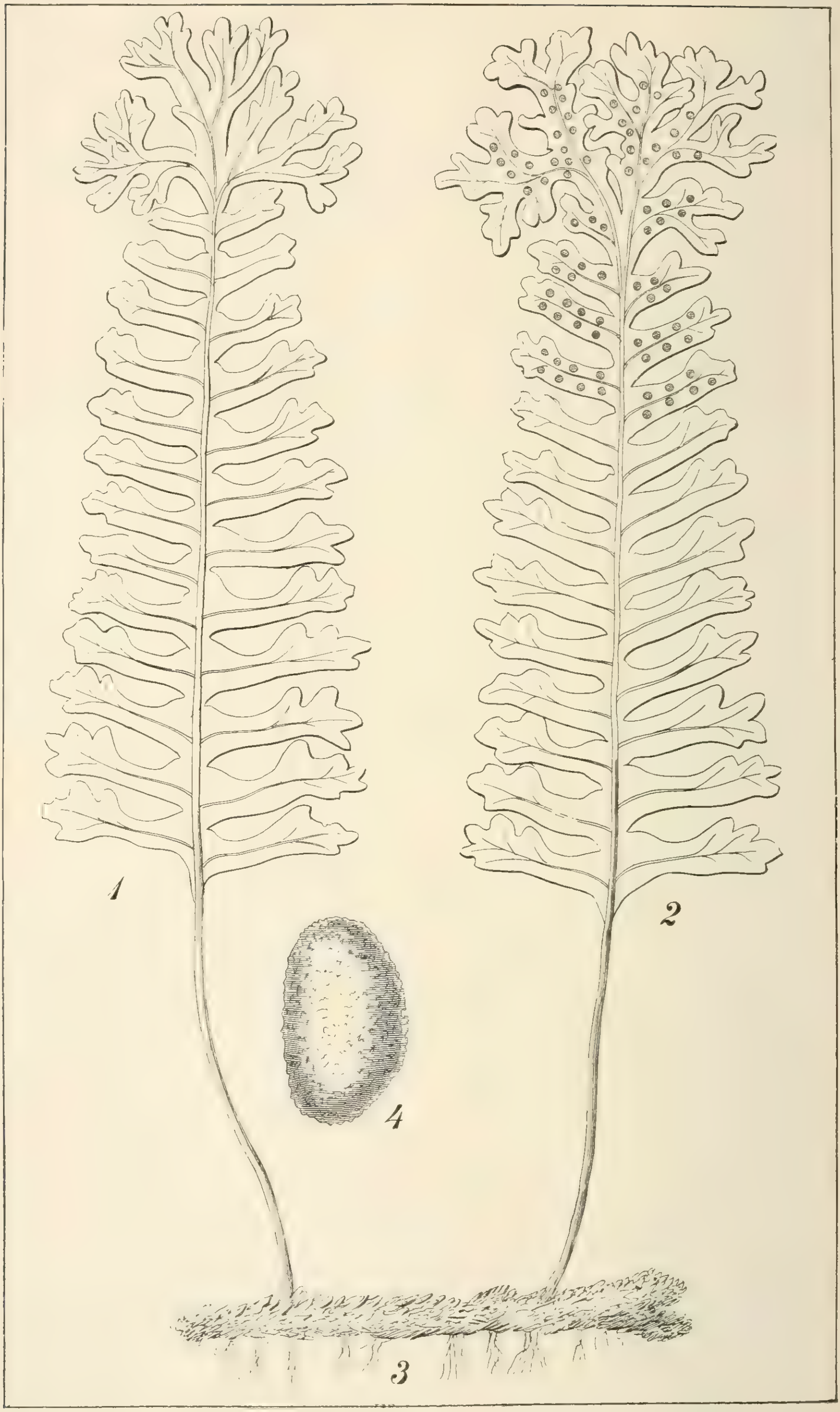
Lycoperdon gemmatum *Batsch.*	Baltimore	Plate 145
Lycoperdon pyriforme *Schæff.*	Common	Plate 147
Lycoperdon giganteum *Batsch.*	Common	Plate 167
Lycoperdon Frostii *Pk.*	Carroll county	Plate 148
Scleroderma vulgare *Fr.*	Blue Ridge Mountains	Plate 146
Cyathus vernicosus *DC.*	Lutherville	Plate 149
Crucibulum vulgare *Tul.*	Common	Plate 150
Hypomyces Banningii *Pk.*	Baltimore	Plate 151
Hypomyces lactifluorum *Schw.*	Lutherville	Plate 152
Xylaria polymorpha *Grev.*	Druid Hill Park	Plate 153
Hirneola auricula-Judæ *Berk.*	Common	Plate 165
Morchella esculenta *Pers.*	Western Maryland	Plate 168
Helvella crispa *Fr.*	Druid Hill Park	Plate 169

Plates 62, 87 and 117 represent species unnamed or unidentified.

Plate 175 represents *Boletus Morgani* Pk., which has not yet been found in Maryland.

The species found in Maryland by Miss Banning but not included in the Volume of Illustrations are 28. Their names are as follows:

Lepiota gracilenta *Krombh.*
Lepiota mastoidea *Fr.*
Armillaria mucida *Fr.*
Tricholoma carneum *Bull.*
Clitocybe flaccida *Sow.*
Clitocybe dealbata *Fr.*
Clitocybe metachroa *Fr.*
Pleurotus ulmarius *Bull.*
Pleurotus algidus *Fr.*
Omphalia grisea *Fr.*
Pluteus chrysophæus *Schæff.*
Entoloma placentum *Batsch.*
Clitopilus prunulus *Scop.*
Naucoria melinoides *Fr.*
Stropharia semiglobatus *Batsch.*
Panæolus separatus *L.*
Coprinus domesticus *Fr.*
Coprinus Hendersonii *Fr.*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EXPLANATION OF PLATE 1

POLYPODIUM VULGARE *L.* VAR. CRISTATUM *Lowe.*

Fig. 1. A frond showing the upper surface.
Fig. 2. A frond showing the lower surface with its fruit dots.
Fig. 3. The creeping rootstock.
Fig. 4. A spore x 400.

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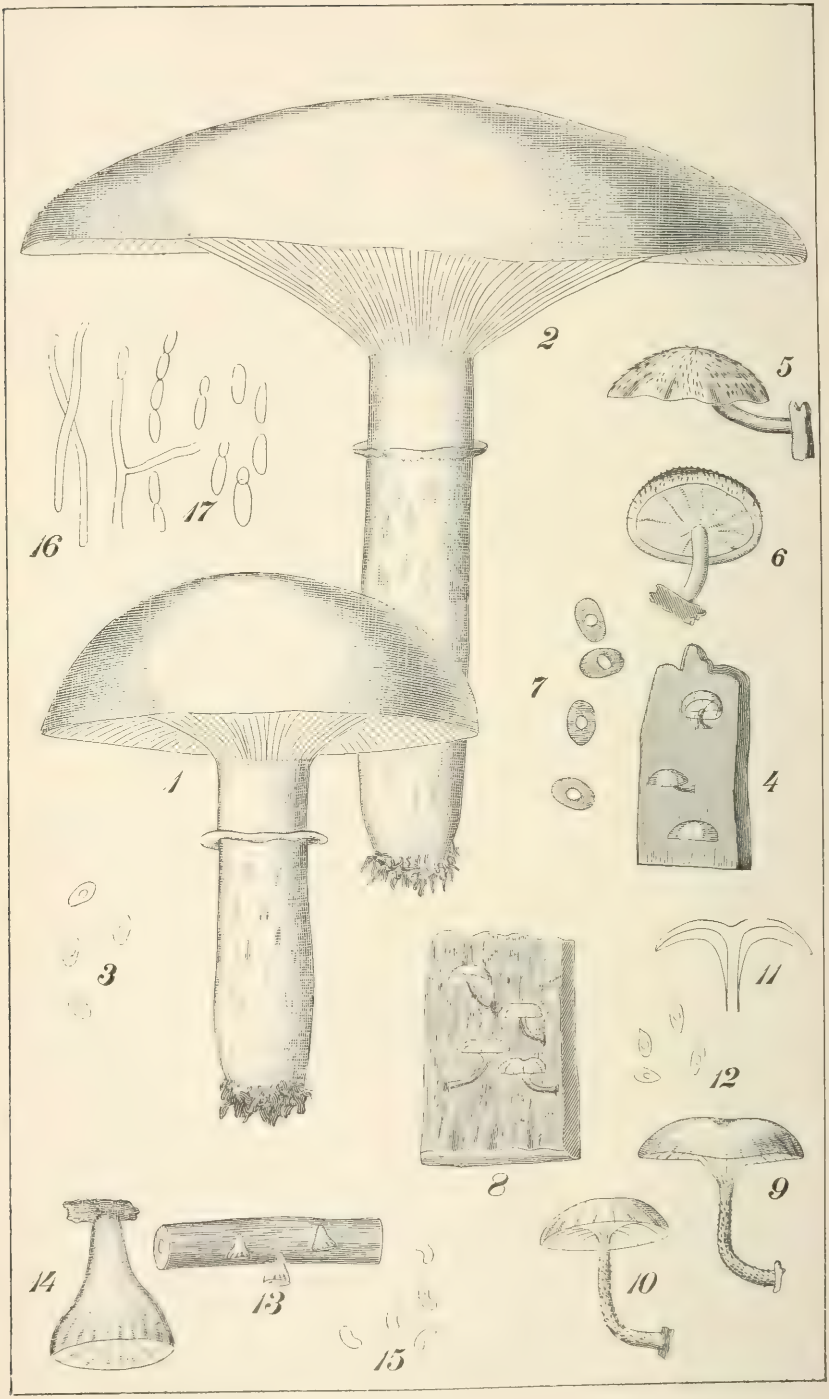
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EXPLANATION OF PLATE 2

ARMILLARIA VISCIDIPES *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Four spores x 400.

CREPIDOTUS DISTANS *Peck.*

Fig. 4. Piece of bark bearing three plants.
Fig. 5. A plant enlarged, showing the upper surface of the pileus.
Fig. 6. A plant enlarged, showing the lamellæ.
Fig. 7. Four spores x 400.

OMPHALIA CORTICOLA *Peck.*

Fig. 8. A piece of bark bearing four plants.
Fig. 9. A plant enlarged, showing the umbilicus of the pileus.
Fig. 10. A plant enlarged, showing the lamellæ.
Fig. 11. Vertical section of a pileus and the upper part of the stem.
Fig. 12. Four spores x 400.

PLEUROTUS CAMPANULATUS *Peck.*

Fig. 13. A branch bearing three plants.
Fig. 14. A plant enlarged.
Fig. 15. Five spores x 400.

SACCHAROMYCES BETULÆ *Pk. & Pat.*

Fig. 16. Three hyphæ, one of them branched.
Fig. 17. Several spores x 400.

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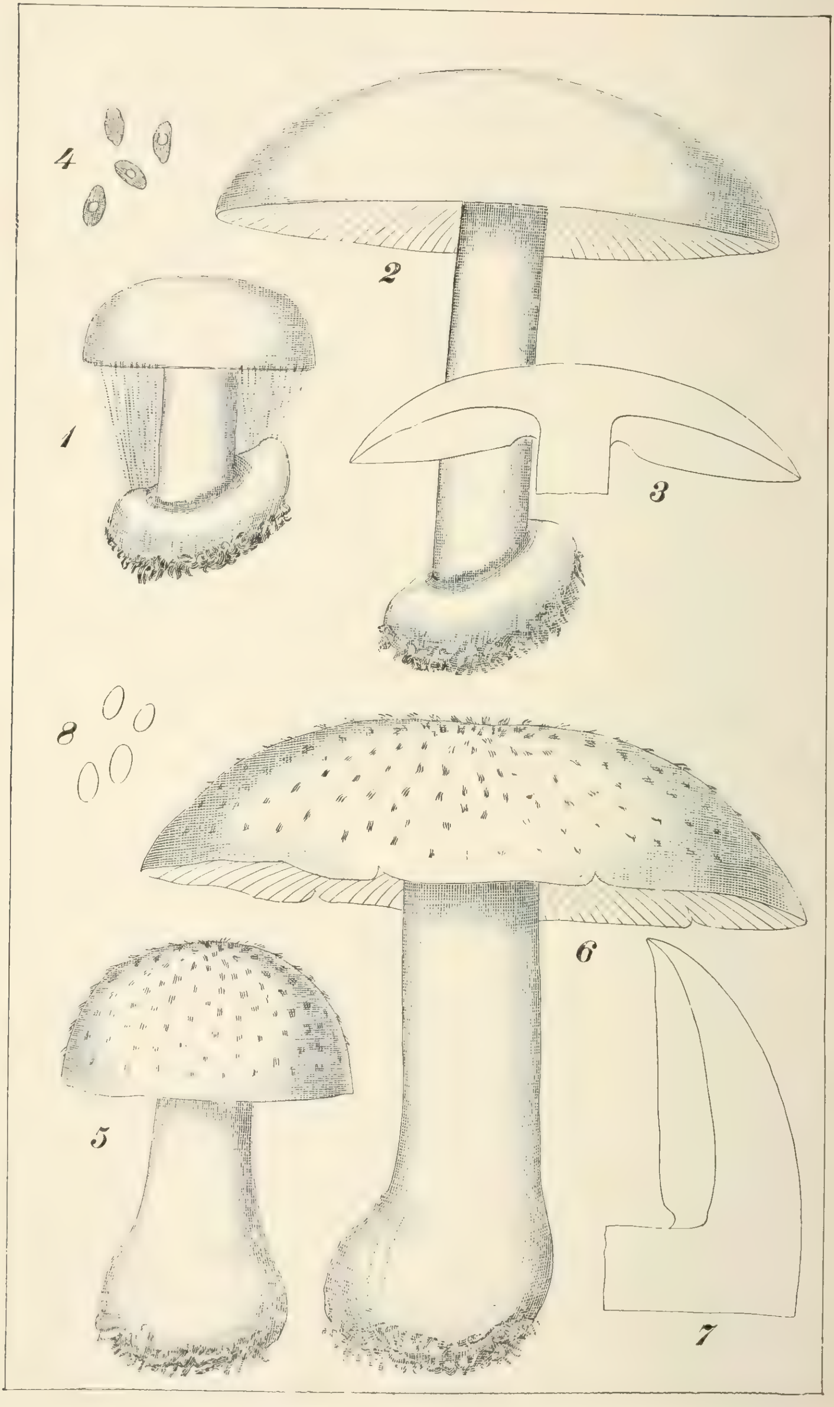

EXPLANATION OF PLATE 3

CORTINARIUS ALBIDUS *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and the upper part of the stem.
Fig. 4. Four spores x 400.

TRICHOLOMA GRANDE *Peck.*

Fig. 5. An immature plant.
Fig. 6. A mature plant.
Fig. 7. Half of a vertical section of a pileus and upper part of the stem; these three figures about two-thirds natural size.
Fig. 8. Four spores x 400.

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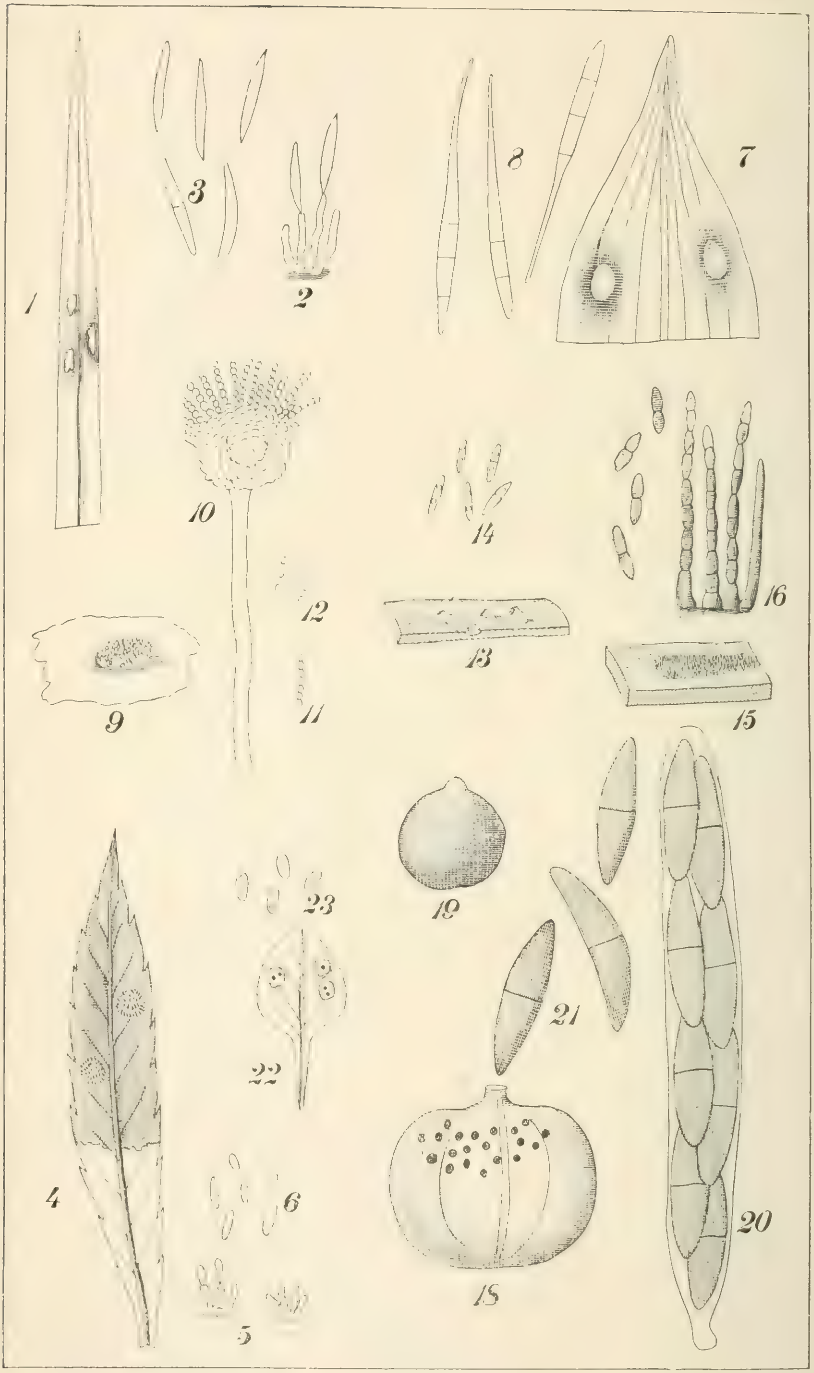
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EXPLANATION OF PLATE 4

RAMULARIA GRAMINICOLA *Peck.*

Fig. 1. Upper part of a grass leaf marked with three fungous spots.
Fig. 2. A cluster of four hyphæ, two of them bearing spores, x 400.
Fig. 3. Five spores x 400.

RAMULARIA DESTRUENS *Peck.*

Fig. 4. A leaflet with the upper half blackened by the fungus and showing two fungous spots.
Fig. 5. Tufts of hyphæ, two filaments bearing spores, x 400.
Fig. 6. Six spores x 400.

CERCOSPORELLA VERATRI *Peck.*

Fig. 7. Upper part of a leaf with two fungous spots.
Fig. 8. Three spores x 400.

ASPERGILLUS AVIARIUS *Peck.*

Fig. 9. Piece of membrane bearing a patch of the fungus.
Fig. 10. A spore-bearing vesicle and its filament, the former partly denuded of its chains of spores, x 400.
Fig. 11. A single chain of spores x 400.
Fig. 12. A group of free spores x 400.

SEPTOMYXA CARPINI *Peck.*

Fig. 13. A piece of bark bearing six heaps of spores.
Fig. 14. Five spores x 400.

BISPORA EFFUSA *Peck.*

Fig. 15. Piece of wood bearing a patch of the fungus.
Fig. 16. Three chains of spores and a sterile hypha x 400.
Fig. 17. Four free spores x 400.

CARYOSPORA MINOR *Peck.*

Fig. 18. A hickory nut bearing a group of the perithecia.
Fig. 19. A perithecium enlarged.
Fig. 20. An ascus containing spores x 400.
Fig. 21. Three spores x 400.

PHYLLOSTICTA LUDWIGIÆ *Peck.*

Fig. 22. A leaf showing three fungous spots.
Fig. 23. Four spores x 400.

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OF THE

STATE BOTANIST

OF THE

STATE OF NEW YORK.

Made to the Regents of the University, Pursuant to
Chapter 355 of the Laws of 1883.

BY CHARLES H. PECK.

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ANNUAL REPORT
OF THE
STATE BOTANIST.

OFFICE OF THE STATE BOTANIST,
ALBANY, *January*, 1892.

To the Honorable the Regents of the University of the State of New York:

I have the honor to present to you my annual report for the year 1891.

Very respectfully,
CHARLES H. PECK.

REPORT.

To the Honorable the Regents of the University of the State of New York:

Gentlemen.— I have the honor of communicating to you the following report:

Specimens of plants for the State Herbarium have been collected in the counties of Albany, Cattaraugus, Cayuga, Cortland, Essex, Fulton, Hamilton, Rensselaer, Saratoga, Seneca, Tompkins, Ulster and Wayne.

Specimens have been contributed by correspondents who collected them in the counties of Albany, Orleans, Onondaga, Rensselaer, Richmond, St. Lawrence, Sullivan, Tompkins and Wayne.

Specimens representing 165 species have been added to the Herbarium during the past year, of which 154 were collected by the Botanist and 11 were contributed. Of the former number 29 were not before represented in the Herbarium, and six of these are new or undescribed species. Of the 11 contributed species, five were not before represented. The increase in the number of species represented is 34. The remaining specimens show some variety or form which was lacking in the Herbarium or serve to improve or make more complete the representation of their respective species.

A list of the species of which specimens have been added to the Herbarium is marked A. Appended to this list are the names of 37 species of trees of which specimens have been collected. These are intended to accompany the collection of wood sections taken from the trunks.

Specimens have been contributed by 23 persons. Among the contributed specimens are many extra-limital species not included in the foregoing enumeration.

Among the contributions is a volume of dried specimens of Carices which is of much interest. It was kindly presented to the State Museum by Mrs. Gould of Hudson and contains examples of about 150 species. It bears the inscription "Carices

Americæ Septentrionalis Exsiccatæ. Edidit H. P. Sartwell M. D., Pars I. II. Penn Yan, Nov. Ebor. 1848. 50." Many of the specimens were collected in New York by Dr. Sartwell himself, but there are contributions from such eminent botanists (most of whom, alas! are now dead) as Dewey, Tuckerman, Oakes, Gray, Wood, Chapman, Carey, Olney, Crawe, Sullivant, Mead, Vasey, Kneiskern, Curtis, Cooley and Hale. There are specimens from Massachusetts, Rhode Island, New Jersey, North and South Carolina, Florida, Louisiana, Ohio, Illineis, Michigan and the White Mountains of New Hampshire. Some of the species represented are quite rare and the printed labels show us how all of them were understood by these master minds in those early days of American caricography.

Another contribution worthy of special notice is that of Professor Eaton of New Haven. It is a collection of ferns made in the Island of Trinidad by Mr. Augustus Fendler and commonly known as "Fendler's Ferns of Trinidad." The luxuriant and beautiful ferns of tropical regions are always full of interest to students of this branch of botany, and these will greatly aid those who may wish to study the ferns of our conservatories. A list of contributors and their respective contributions is marked B.

A record of species not before reported by me and descriptions of such as are thought to be new will be found in a part of the report marked C.

I have added to this the descriptions of seven extra-limital species that were sent to me for identification but of which no description was found.

Remarks concerning species previously reported, a record of new localities of rare plants and descriptions of new varieties may be found in a part of the report marked D.

Following a plan previously adopted, the descriptions of our New York species of Omphalia have been revised and rewritten and the spores examined and their dimensions included so that the identification of our species may be made more easy, certain and satisfactory. These descriptions may be found in a part of the report marked E.

In accordance with my instructions the work of preparing life-size drawings of our edible and poisonous species of fleshy fungi, colored according to nature, has been commenced. At the present time twenty plates have been completed and five others are partly done. About forty plates will be needed to illustrate the species satisfactorily. Except in case of some of the smaller species, an entire plate is devoted to a single species, so that its variations in size and color may be shown. The plates are 9 x 12, or 7½ x 9½ within the marginal lines. It has been my purpose to make a personal trial of all the edible species illustrated so that it may be possible for me to speak with confidence concerning their qualities. With two or three exceptions this has been done with the species already figured, and these exceptions will be tried as soon as opportunity is afforded. From the eagerness with which literature pertaining to and illustrations of edible and poisonous fungi are sought and from the numerous inquiries received by me concering the edible qualities of specimens sent in for identification it is clearly manifest that there is a widespread and increasing desire among our people to understand more of this subject and to be able to distinguish with confidence the good species. I am sure therefore that any well-directed and faithful efforts to meet this demand and to give reliable information on this subject will be well received and highly appreciated.

Some observations of no little interest have been made upon some of the parasitic fungi. A minute grayish mold-like fungus, known to mycologists as *Botrytis vulgaris* is quite common. It is classed among the saprophytes, and its habitat is given as "decaying herbs, fruits, flowers, twigs and leaves." My observations lead to the conclusion that it often acts as a true parasite. It is common enough on the fruit of strawberry, raspberry and blackberry plants. It spreads rapidly in favorable weather from the affected to the sound fruit. If a sound berry is in contact with one affected by this fungus a discolored decaying spot soon appears at the point of contact, showing clearly that the mycelium of the fungus has passed from the diseased berry to the sound one and penetrated its tissues. In this way the contagion will quickly extend through all the berries of the cluster, provided they touch each other and the diseased ones are allowed to remain in place. The fungus quickly produces rot or decay in the berry it attacks but it has no hesitation in attacking perfectly sound and healthy fruit.

The "fruit oidium," *Monilia fructigena*, which has recently been called the "peach rot," is similar to the preceding one in color but very different in structure. It also was regarded by the earlier botanists as a saprophyte, but it also is now known to be a real and a very destructive parasite. The habitat usually ascribed to it in the books is "decaying fruits," but Professors Arthur and Smith have both shown most conclusively that it attacks sound and healthy fruits and that it induces that decay in them which was formerly thought to be a condition of its growth. My observations confirm what they have said of this fungus and show very clearly some of the contributing causes to its ravages. It is well known that its behavior is especially malignant in wet weather and that it works with most destructive force on peaches, plums and cherries, though frequently attacking also, apples, pears and quinces. The past season, cherries with us almost entirely escaped for the simple reason that dry weather prevailed up to the time of their ripening. Plums and peaches on my grounds were fully one-half destroyed by this fungus, but at the time they were maturing wet, cloudy and rainy weather prevailed. One plum tree maturing its fruit later than the others had many diseased fruits while the wet weather lasted, but the trouble was greatly diminished after the rains ceased. Then even the fruit that had cracked open escaped attack.

Insects that eat holes in the fruit are a contributing cause. The only quince on my grounds that I have thus far seen affected was one in the side of which some insect had eaten a small hole and then left it. The aperture was very shallow, but the fungus spores gained admission to the flesh by it and immediately produced the characteristic decayed brown spot all about it as a center of infection. Very many of the affected peaches first showed the presence of the fungus on the side where small holes had been made through the peel, apparently by some small insect, though I was not able to detect any insect in the act. Honey bees in great numbers were found sucking the juice of the peach from these little cavities, and not a few striped cucumber beetles were found in them feeding upon the juicy flesh of the peach. Whenever peaches as well as plums were in contact, an affected one would quickly transmit its disease to its sound neighbor through the point of contact, which is a strong argument for the proper thinning of fruit. Peaches sometimes transmit the disease, through the agency of the mycelium of the fungus, to the branch that sustains them, and then the branch soon withers and dies. This may be prevented by promptly removing the affected peaches. But sometimes young and tender branches are killed by an attack through the agency of the spores. On a young plum tree the tips of several branches on which there were no plums died and showed the characteristic spore clusters of this fungus on their surface. A young apricot tree, on which there was no fruit, lost the tips of many of its branches by the invasion of this same fungus. New shoots started, but during a renewal of the rainy weather the attack was repeated and these were in like manner killed. The fungus is certainly one capable of doing a vast amount of mischief; nor is it to be overcome by picking and destroying the affected fruit and twigs unless this is promptly done by every one in an affected district, for if the trees of one orchard or garden are cleared, the spores are quickly wafted to them again by the winds from any neglected neighboring orchard or tree.

Another minute mold-like fungus, *Rhopalomyces Cucurbitarum*, has "putrid squashes" recorded as its habitat. But in this case, as in the others, the fungus is itself the cause of the putridity in the squashes, not a consequence. Young but sound squashes scarcely out of blossom are attacked by it and quickly reduced to a pulpy putrid mass. Mature squashes are less often injured or destroyed by it unless there is a contributing cause. Sometimes centipedes eat cavities in the under side of a squash where it is in contact with the earth. Through these cavities the fungus spores gain access and quickly reduce the squash to a worthless putrid mass.

Very respectfully submitted.

CHAS. H. PECK.

ALBANY, *October* 1, 1891.

A.

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Cardamine rotundifolia *Mx.*
Stellaria graminea *L.*
Ailanthus glandulosus *Desf.*
Aster Herveyi *Gr.*
Lysimachia nummularia *L.*
Plantago Patagonica *Jacq.*
Carya sulcata *Nutt.*
Carex æstivalis *M. A. C.*
Panicum miliaceum *L.*
Clitopilus carneo-albus *With.*
Leptonia parva *Pk.*
L. grisea *Pk.*
Galera flava *Pk.*
Agaricus hæmorrhoidarius *Schulz.*
Hypholoma subaquilum *Banning.*
Russula roseipes *Bres.*
Dædalea quercina *Fr.*
Septoria podophyllina *Pk.*
Glœosporium populinum *Pk.*
G. allantoideum *Pk.*
G. nervisequum *Sacc*
Puccinia Zopfii *Wint.*
Ustilago Tritici *Jens.*
U. Hordei *K. & S.*
Doassansia Martianoffiana *Schroet.*
Entyloma Physalidis. *Wint.*
Peronospora Rubi *Rabh.*
P. obovata *Bon.*
Sporotrichum parasiticum *Pk.*
Pseudopeziza Medicaginis *Sacc.*
Sphærotheca mors-uvæ *B. & C.*
S. Humuli *Burrill.*
Erysiphe Galeopsidis *DC.*

Not new to the Herbarium.

Anemone Virginiana *L.*
Magnolia acuminata *L.*
Cardamine rhomboidea *DC.*
Nasturtium lacustre *Gr.*
Hudsonia tomentosa *Nutt.*
Viola cucullata *Ait.*
V. sagittata *Ait.*
V. renifolia *Gr.*
V. pub. var. scabriuscula *T. & G.*
Dianthus Armeria *L.*
D. barbatus L.
Lychnis Flos-cuculi *L.*
Stellaria longipes *Goldie.*
Hypericum perforatum *L.*
Tilia Americana *L.*
Oxalis Acetosella *L.*
Acer sacch. var. nigrum *T. & G.*
Rubus Canadensis *L.*
Fragaria Indica *L.*
Poterium Canadense *B. & H.*
Pyrus communis *L.*
P. Malus *L.*
P. sambucifolia *C. & S.*
Thaspium barbinode *Nutt.*
Cicuta bulbifera *L.*
Conium maculatum *L.*
Galium trifidum *L.*
Solidago bic. var. concolor *T. & G.*
S. puberula *Nutt.*
S. uliginosa *Nutt.*
S. speciosa *Nutt.*
S. arguta *Ait.*
Aster undulatus *L.*
A. cord. var. lævigatus *Porter.*
A. vimineus *Lam.*
A. diffusus *Ait.*
A. paniculatus *Lam.*
A. Novi-Belgii *L.*
A. puniceus *L.*
Erigeron stri. var. discoideus *Rob.*
Antennaria plantaginifolia *Hook.*
Lampsana communis *L.*
Cirsium arvense *Hoffm.*
Vaccinium corymbosum *L.*
Lysimachia stricta *Ait.*
L. strict. var. producta *Gr.*
Asclepias incarnata *L.*
Halenia deflexa *Gris.*
Phlox divaricata *L.*
Polemonium reptans *L.*

Pentstemon lævigatus *Soland.*
Verbena urticifolia *L.*
V. hastata *L.*
Polygonella articulata *Meisn.*
Juglans nigra *L.*
Carya amara *Nutt.*
C. microcarpa *Nutt.*
Betula nigra *L.*
Quercus palustris *DuRoi.*
Salix nigra *Marsh.*
S. amygdaloides *And.*
Populus balsamifera *L.*
Corallorhiza innata *R. Br.*
Clintonia umbellata *Torr.*
Erythronium Americanum *Ker.*
Trillium grandiflorum *Salish.*
Sagittaria vari. var. gracilis *Eng.*
Cyperus dentatus *Torr.*
Eriophorum vaginatum *L.*
Eleocharis tuberculosa *R. Br.*
Juncus Balt. var. littoralis *Eng.*
Scirpus atrovirens *Muhl.*
S. microcarpus *Presl.*
S. sylvaticus *L.*
S. polyph. var. macrostachys *Bœckl.*
Carex Grayii *Carey.*
C. utric. var. minor *Boott.*
C. hystricina *Muhl.*
C. riparia *Curt.*
C. triceps *Mx.*
C. gracillima *Schw.*
C. Œderi *Ehrh.*
C. laxiflora *Lam.*
C. pubescens *Muhl.*
C. alopecoidea *Tuckm.*
C. rosea var. radiata *Dew.*
C. varia *Muhl.*
C. echinata *Murr.*
C. trisperma *Dew.*
Panicum latifolium *L.*
P. Crus-galli *L.*
Muhlenbergia sobolifera *Trin.*
M. sylvatica *T. & G.*
Agrostis vulgaris *With.*
Poa comp. var. sylvestris *Torr.*
Agropyrum caninum *R. & S.*
Festuca nutans *Willd.*
Botrychium ternatum *Sw.*
Amanita cæsarea *Scop.*
Lepiota rhacodes *Vitt.*
Tricholoma album *Fr.*
T. personatum *Fr.*
Clitocybe cyathiformis *Fr.*
Collybia Familia *Pk.*
Mycena galericulata *Scop.*
Pholiota discolor *Pk.*
Hebeloma crustuliniformis *Bull.*
Agaricus sylvicola *Fr.*
Stropharia squamosa *Fr.*
Psilocybe spadicea *Fr.*
Cortinarius collinitus *Fr.*
Hygrophorus splendens *Pk.*
H. pratensis *Fr.*
Cantharellus lutescens *Bull.*
Marasmius erythropus *Fr.*
Boletus punctipes *Pk.*
Polyporus brumalis *Fr.*
Poria sanguinolenta *Fr.*
Dædalea unicolor *Fr.*
Hydnum pallidum *C. & E.*
H. stipatum *Fr.*
Irpex Tulipifera *Schw.*
Corticium lacteum *Fr.*
Coniophora puteana *Fr.*
Tremella mesenterica *Retz.*
Glœosporium lagenarium *S. & K.*
Ramularia variabilis *Fckl.*
R. lineola *Pk.*
Bactridium flavum *K. & S.*
Zygodesmus fuscus *Cd.*
Fusarium Solani *Sacc.*
Tubercularia persicina *Sacc.*
Cystopus candidus *Lev.*
Vibrissea truncorum *Fr.*
Peziza chlora *Schw.*
Melogramma vagans *DeNot.*

Specimens from Trees.

Magnolia acuminata *L.*
Tilia Americana *L*
Acer saccharinum *Wang.*
A. sacch. var. nigrum *T. & G.*
A. dasycarpum *Ehrh.*
Betula lenta *L.*
B. populifolia *Ait.*
B. papyrifera *Marsh.*
B. nigra *L.*
Ostrya Virginica *Willd.*

Prunus Pennsylvanica *L.*
P. serotina *Ehrh.*
Ulmus fulva *Mx.*
U. Americana *L.*
U. racemosa *Thomas.*
Celtis occidentalis *L.*
Morus rubra *L.*
Platanus occidentalis *L.*
Juglans nigra *L.*
J. cinera *L.*
Carya sulcata *Nutt.*
C. porcina *Nutt.*
C. amara *Nutt.*
Quercus palustris *DuRoi.*
Betula lutea *Mx.*
Carpinus Caroliniana *Walt.*
Fagus ferruginea *Ait.*
Castanea sat. var. Americana *Mx.*
Salix nigra *Marsh.*
Populus balsamifera *L.*
P. bal. var. candicans *Gr.*
P. monilifera *Ait.*
Pinus Strobus *L.*
P. rigida *Mill.*
P. resinosa *Ait.*
Abies balsamea *Mill.*
Larix Americana *Mx.*
Thuya occidentalis *L.*
Juniperus Virginiana *L.*

B.

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. Hannah Gould, Hudson, N. Y.

Carex glaucescens, *Ell.*
C. longirostris *Torr.*
C. oligosperma *Mx.*
C. Tuckermani *Boott.*
C. bullata *Schk.*
C. ampullacea *Good.*
C. monile *Tuckm.*
C. Schweinitzii *Dew.*
C. retrorsa *Schw.*
C. stenolepis *Torr.*
C. squarrosa *L.*
C. lupuliformis *Sart.*
C. lupulina *Muhl.*
C. subulata *Mx.*
C. turgescens *Torr.*
C. rostrata *Mx.*
C. folliculata *L.*
C. Elliottii *S. & T.*
C. Grayii *Carey.*
C. intumescens *Rudge.*
C. tentaculata *Muhl.*
C. hystricina *Willd.*
C. pseudo-cyperus *L.*
C. comosa *Boott.*
C. trichocarpa *Muhl.*
C. aristata *R. Br.*
C. lacustris *Willd.*
C. striata *Mx.*
C. Halseyana *Dew.*
C. vestita *Willd.*
Carex eburnea *Boott.*
C. Hitchcockiana *Dew.*
C. oligocarpa *Schk.*
C. ignota *Dew.*
C. blanda *Dew.*
C. laxiflora *Lam.*
C. digitalis *Willd.*
C. retrocurva *Dew.*
C. platyphylla.
C. Careyana *Dew.*
C. plantaginea *Lam.*
C. hirsuta *Willd.*
C. virescens *Muhl.*
C. gracillima *Schw.*
C. formosa *Dew.*
C. Davisii *S. & T.*
C. flaccosperma *Dew.*
C. grisea *Wahl.*
C. conoidea *Schk.*
C. pallescens *L.*
C. Meadii *Dew.*
C. Woodii *Dew.*
C. crinita *Lam.*
C. cephaloidea *Dew.*
C. alopecoidea *Tuckm.*
C. Leavenworthii *Dew.*
C. scabrior *Sart.*
C. disticha *Huds.*
C. granularis *Muhl.*
C. Crawei *Dew.*

Carex lanuginosa *Mx.*
C. filiformis *L.*
C. Œderi *Ehrh.*
C. flava *L.*
C. Cherokeënsis *Schw.*
C. flexilis *Rudge.*
C. capillaris *L.*
C. venusta *Dew.*
C. debilis *Mx.*
C. arctata *Boott.*
C. Sullivantii *Boott.*
C. scabrata *Schw.*
C. miliacea *Muhl.*
C. Chapmani *Sart.*
C. pubescens *Muhl.*
C. præcox *Jacq.*
C. Richardsoni *R. Br.*
C. varia *Muhl.*
C. Pennsylvanica *Lam.*
C. lucorum *Willd.*
C. Emmonsii *Dew.*
C. umbellata *Schk.*
C. Baltzellii *Chapm.*
C. pedunculata *Muhl.*
C. cristata *S. & T.*
C. lagopodioides *Schk.*
C. scoparia *Schk.*
C. Liddoni *Boott.*
C. arida *S. & T.*
C. sycnocephala *Carey.*
C. sterilis *Schk.*
C. scirpoides *Schk.*
C. Deweyana *Schw.*
C. stellulata *Good.*
C. sphærostachya *Dew.*
C. canescens *L.*
C. tenuiflora *Wahl.*
C. trisperma *Dew.*
C. gracilis *Ehrh.*
C. Fraseri *Sims.*
C. chordorhiza *Ehrh.*
C. retroflexa *Muhl.*
C. rosea *Schk.*
C. Muhlenbergii *Schk.*
C. cephalophora *Muhl.*
Carex tetanica *Schk.*
C. panicea *L.*
C. livida *Willd.*
C. aurea *Nutt.*
C. Shortiana *Dew.*
C. atrata *L.*
C. Buxbaumii *Wahl.*
C. irrigua *Sm.*
C. limosa *L.*
C. flacca *Schreb.*
C. salina *Wahl.*
C. aquatilis *Wahl.*
C. stricta *Lam.*
C. strictior *Dew.*
C. acuta *L.*
C. vulgaris *Fr.*
C. torta *Boott.*
C. rigida v. Bigelovii *Tuckm.*
C. straminea *Schk.*
C. alata *Torr.*
C. fœnea *Muhl.*
C. mirabilis *Dew.*
C. tenera *Dew.*
C. festucacea *Schk.*
C. cephaloidea *Dew.*
C. sparganioides *Muhl.*
C. stipata *Muhl.*
C. alopecoidea *Tuckm.*
C. Crus-corvi *Shutt.*
C. decomposita *Muhl.*
C. vulpinoidea *Mx.*
C. prairiea *Dew.*
C. Sartwellii *Dew.*
C. teretiuscula *Good.*
C. siccata *Dew.*
C. Backii *Boott.*
C. Steudelii *Kunth.*
C. Willdenowii *Schk.*
C. bromoides *Schk.*
C. polytrichoides *Muhl.*
C. pauciflora *Light.*
C. capitata *L.*
C. scirpoidea *Mx.*
C. dioica *L.*

Mrs. E. C. Anthony, Gouverneur, N. Y.

Viola cucullata *Ait.*

Mrs. L. L. Goodrich, Syracuse, N. Y.

Fragaria Indica *L.*

Prof. D. C. Eaton, New Haven, Conn.

Adiantum Kaulfussii *Kze.*
A. intermedium *Sw.*
A. tetraphyllum *Willd.*
A. pulverulentum *L.*
A. lucidum *Sw.*
A. villosum *L.*
A. macrophyllum *Sw.*
A. tenerum *Sw.*
A. obtusum *Desv.*
A. polyphyllum *Willd.*
Aspidium molle *Sw.*
A. macrophyllum *Sw.*
A. subquinquefidum *Bv.*
A. invisum *Sw.*
A. amplum *Mett.*
A. melagodes *Mett.*
A. Sprengelii *Kaulf.*
A. semicordatum *Sw.*
A. trifoliatum *Sw.*
A. effusum *Gris.*
A. Imrayanum *Fee.*
Asplenium Shepherdi *Spreng.*
A. grandifolium *Sw.*
A. lunulatum *Sw.*
A. crenulatum *Baker.*
A. cultrifolium *L.*
Aneimia Phyllitidis *Sw.*
A. Breuteliana *Presl.*
Acrostichum sorbifolium *L.*
A. osmundaceum *Hook.*
A. flaccidum *Fee.*
A. cervinum *L.*
A. nicotianifolium *Sw.*
A. caudatum *Hook.*
Alsophila nitens *Sm.*
A. ferox *Presl.*
A. blechnoides *Hook.*
Blechnum occidentale *L.*
B. longifolium *H. B. K.*
B. volubile *Kaulf.*
Cheilanthes radiata *R. Br.*
Cyathea Schanshin *Mart.*
Danæa elliptica *Sm.*
Davallia inæqualis *Kze.*
D. saccoloma *Spreng.*
Dicksonia cicutaria *Sw.*
Gymnogramme calomelanos *Kaulf.*
Gleichenia pubescens *H. B. K.*
G. pectinata *Presl.*
Hemionitis palmata *L.*
Hemitelia grandifolia *Spreng.*
Hymenophyllum ciliatum *Sw.*
Hypoderris Brownii *Sm.*
Lindsæa stricta *Dry.*
L. trapeziformis *Dry.*
Lygodium venustum *Sw.*
L. volubile *Sw.*
Meniscium reticulatum *Sw.*
Nephrolepis acuta *Presl.*
N. exaltata *Presl.*
Oleandra nodosa *Presl.*
O. neriiformis *Cav.*
Phegopteris crenata *Mett.*
P. flavopunctata *Fee.*
Pteris pungens *Willd.*
P. aquil. v. esculenta *H. & B.*
Polypodium aureum *L.*
P. incanum *Sw.*
P. neriifolium *Schk.*
P. vacciniifolium *L.*
P. nematorhizon *Eaton*
P. serrulatum *Mett.*
P. lycopodioides *L.*
P. piloselloides *H. & B.*
Trichomanes crispum *L.*
T. pinnatum *Hedw.*
T. sinuosum *Rich.*
T. membranaceum *L.*
T. Prieurii *Kye.*
T. spicatum *Hedw.*
Lycopodium cernuum *Lve.*
Selaginella patula *Spreng.*
S. serpens *Spreng.*

Prof. N. L. Britton, New York, N. Y.

Nymphæa reniformis *DC.*
Nelumbium nuciferum *Gœrt.*
Lathyrus maritimus *Bigel.*
Aster cordifolius *L.*
Vaccinium vacillans *Sibth.*
V. Pennsylvanicum *Lam.*
Vaccinium corymbosum *L.*
V. disocarpum *Bigel.*
Halenia deflexa *Gris.*
Carya microcarpa *Nutt.*
Juncus Balticus *Deth.*
Eleocharis tuberculosa *R. Br.*

Prof. B. D. Halsted, New Brunswick, N. J.

Peronospora Rubi *Rabh.*
P. alta *Fckl.*
P. obovata *Bon.*
Peronospora parasitica *DeBy.*
Plasmopara viticola *B. & C*
Puccinia Spergulæ *DC.*

Rev. F. D. Kelsey, Helena, Mont.

Phragmidium subcorticium *Wint.*
Puccinia intermixta *Pk.*
P. Tanaceti *DC.*
P. Menthæ *Pers.*
P. Malvastri *Pk.*
P. Troximontis *Pk.*
P. Giliæ *Hark.*
P. Phragmitis *Korn.*
P. mirabillissima *Pk.*
P. emaculata *Schw.*
P. Thlaspeos *Schub.*
P. Hieracii *Mart.*
Uromyces Eriogoni *E. & H.*
U. Trifolii *Lev.*
U. borealis *Pk.*
Ustilago segetum *Dittm.*
Melanospora farinosa *Pers.*
M. Cerastii *Schroet.*
M. Lini *Tul.*
Coleosporium Solidaginis *Thum.*
Cronartium Comandræ *Pk.*
Rœstelia lacerata *Tul.*
Cystopus candidus *Lev.*
Ramularia arnicalis *E. & E.*
Æcidium Pini *Pers.*
Æ. Clematidis *DC.*
Æ. Ranunculacearum *DC.*
Æ. porosum *Pk.*
Æ. Allenii *Clint.*
Æ. Cleomis *E. & A.*
Æ. Asterum *Schw.*
Æ. Violæ *Schum*
Æ. Compositarum *Mart.*
Æ. Thalictri *Grev.*
Æ. Eurotiæ *E. & E.*
Æ. gaurinum *Pk.*
Æ. monoicum *Pk.*
Æ. Plantaginis *Cke.*
Erysiphe communis *Wallr.*
E. Cichoracearum *DC.*
Sphærotheca Castagnei *Lev.*
Phyllactinia suffulta *Reb.*
Microsphæria Ravenelii *B.*
Valsa boreella *Karst.*
Physalospora megastoma *Sacc.*
Leptosphæria Typharum *Desm.*
Phyllachora Wittrockii *Erik.*

C. L. Shear, Alcove, N. Y.

Agaricus placomyces *Pk.*
Plantago Patagonica *Jacq.*

E. W. D. Holway, Decorah, Ia.

Puccinia Zopfii *Wint.*
P. Rhodiola *B. & Br.*
Uromyces perigynius *Halsted.*
Entyloma Castaliæ *Holway.*
E. Yuccæfoliæ *Holway.*

P. H. Dudley, New York, N. Y.

Xylaria Hypoxylon *Fr.*
Trametes Pini *Fr.*

A. P. Morgan, Preston, O.

Tilmadoche columbina *Berk.*
Cornuvia elegans *Morg.*
Physarum albicans *Pk.*
Dermodium conicum *Pers.*

Roland Thaxter, New Haven, Conn.

Rhopalomyces strangulatus *Thax.*
Sporotrichum globuliferum *Speg.*

J. B. Ellis, Newfield, N. J.

Cercospora Asiminæ *E. & K.*

Chas. L. Williams, Glens Falls, N. Y.

Lysimachia stricta *Ait.* var. producta *Gr.*

Prof. S. M. Tracy, Agricultural College, Miss.

By exchange.

Agropyrum tenerum *Vasey.*
A. glaucum *R. & S.*
A. divergens *Nees.*
Avena flavescens *L.*
A. pratensis *L.*
A. sterilis *L.*
Aristida stricta *Mx.*
A. stipoides *R. Br.*
A. oligantha *Mx.*
Alopecurus agrestis *L.*
Anthænantia rufa *Benth.*
A. villosa *Bv.*
Bromus erectus *Huds.*
Bouteloua hirsuta *Lag.*
Beekmannia erucæformis *Huds.*
Cynosurus echinatus *L.*
Cottea pappaphoroides *Kth.*
Chloris acicularis *R. Br.*
C. Swartziana *Dœll.*
Ctenium Americanum *Spreng.*
Coix lachryma *L.*
Diplachne Tracyi *Vasey.*
D. imbricata *Vasey.*
Deyeuxia neglecta *Kth.*
Elymus Macounii *Vasey.*
Eragrostis campestris *Tris.*
Eatonia obtusata *Gr.*
Eleusine Ægyptiaca *Pers.*
Erianthus saccharoides *Mx.*
Festuca elatior *L.*
Glyceria distans *Wahl.*
Hordeum murinum *L.*
Kœleria cristata *Pers.*
Leptochloa mucronata *Kth.*
Leersia hexandra *Sw.*
Munroa squarrosa *Torr.*
Oryzopsis cuspidata *Benth.*
Oplismenus setarius *R. & S.*
Poa tenuiflora *Nutt.*
P. Traceyi *Vasey.*
P. alpina *L.*
P. compressa *L.*
P. gracillima *Vasey.*
P. flexuosa *Muhl.*
P. cenisia *All.*
P. cæsia *Sm.*
Poppophorum Wrightii *Wats.*
Polypogon maritimus *L.*
Phleum alpinum *L.*
Panicum viscidum *Ell.*
P. serotinum *Trin.*
P. scoparium *Lam.*
P. Palmeri *Vasey.*
P. obtusum *H. B. K.*
P. microcarpum *Muhl.*
P. glabrum *Ell.*
P. effusum *R. Br.*
P. dichotmum v. viride *Vasey.*
P. autumnale *Bosc.*
P. commutatum *ch.*
Paspalum dilatatum *Poir.*
P. Floridanum *Mx.*
P. platycaul *P dr.*
P, purpurascens *Ell.*
Roteboellia rugosa *Nutt.*
Schedonnardus Texanus *Steud.*
Setaria setosa *Bv.*
Sporobolus junceus *Kth.*
S. depauperatus *Vasey.*
S. ramulosus *Kth.*
S. asperifolius *N. & M.*
Tragus racemosus *Hall.*
Uniola paniculata *L.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Glœosporium allantoideum *Pk.*
Rhizopus nigricans *Ehr.*

L. H. Cress, Fremont, Ohio.

Morchella conica *Pers.*

E. L. Hankenson, Newark, N. Y.

Lychnis Flos-cuculi *L.*
Lampsana communis *L.*

F. L. Henderson, Olympia, Wash.

Mycena strobilinoidea *Pk.*
Exobasidium Cassiopes *Pk.*
Nidularia candida *Pk.*

M. E. Jones, Salt Lake City, Utah.

Septoria Peraphylli *Pk.*
Uromyces deciduus *Pk.*

F. L. H~~e~~arvey, Orono, Maine.

Clavaria H~~e~~arveyi *Pk.*

C. F. Millspaugh, Morganstown, W. Va.

Septosporium Equiseti *Pk.*

Prof. W. R. Dudley, Ithaca, N. Y.

Pentstemon lævigatus *Sol.*

Arthur M. Peck, Sandlake, N. Y.

Populus balsamifera *L.*

(C.)

PLANTS NOT BEFORE REPORTED.

Cardamine rotundifolia *Mx.*

Springy and wet places. Carrollton, Cattaraugus county. June. New Jersey and Pennsylvania have heretofore been considered the northern limit of this plant, but it is plentiful in at least two localities near Carrollton.

Stellaria graminea *L.*

Roadsides. Sandlake, Rensselaer county; New Scotland, Albany county. June and July. A pretty little species introduced from Europe and resembling somewhat the native species, *S. longifolia* and *S. longipes*, but distinct from both by its leaves and rough seeds.

Ailanthus glandulosus *Desf.*

Roadsides and waste places. Long Island; Cold Spring, Putnam county; Marlborough, Ulster county. This rapid-growing tree, introduced from China, often springs up spontaneously by roadsides and in waste places about cities and villages. It has been represented to me as spreading so rapidly in some places that it is troublesome.

Aster Herveyi *Gray.*

Borders of woods. Salamanca, Cattaraugus county. September. This species might easily be taken for a bright violet-rayed form of *A. macrophyllus*, but it differs from that species in its glandular pubescent floral branches and peduncles.

Lysimachia nummularia *L.*

Wilton, Saratoga county. July. Introduced and escaped from cultivation.

Plantago Patagonica *Jacq.* var. aristata *Gr.*

Sandy fields. Alcove, Albany county. August. *C. L. Shear.* Probably a recent introduction.

Carya sulcata *Nutt.*

Alluvial soil along the inlet of Owasco lake. July.

This hickory was first observed in this locality by Professor Dudley. The trees are not numerous but thrifty. Their leaves are very large, some of them measuring nearly two feet in length including the petiole. The terminal leaflet measures ten to twelve inches long and three to three and a half inches broad in the dried specimens. Withered aments were seen but no young fruit.

Carex æstivalis *M. A. C.*

Woods. East Worcester, Otsego county. July.

This plant somewhat resembles slender forms of *Carex arctata*, but from that species it may be distinguished by its more slender and erect spikes, its less pointed perigynia, shorter scales and by the pistillate flowers or perigynia at the top of the staminate spike.

Panicum miliaceum *L.*

Ithaca. *Professor Dudley.* Todt Hill road, near the Moravian church, Richmond county. *A. Hollick.* This millet has been introduced and is occasionally spontaneous. It is a beautiful and an interesting grass.

Clitopilus carneo-albus *With.*

Shaded ground. Menands. June.

Leptonia parva *n. sp.*

Pileus thin, convex or nearly plane, umbilicate, slightly radiate-striate, violaceous-brown, the umbilicus darker and squamulose; lamellæ subdistant, adnate, whitish tinged with flesh-color; stem slender, glabrous, solid, colored like the pileus; spores irregular or angular, uninucleate, about .0003 in. long, .00025 broad.

Pileus about 6 lines broad; stem about 1 in. long, scarcely 1 line thick.

Woods. Lake Pleasant, Hamilton county. August.

The color of the pileus is almost exactly like that of dark-colored forms of *L. serrulata*, but its smaller size, whitish lamellæ without darker serrated edge and stem not punctate at the top separate it.

Leptonia grisea *n. sp.*

Pileus broadly convex or plane, umbilicate, striatulate when moist, glabrous except the squamulose umbilicus, grayish brown; lamellæ broad, subdistant, grayish; stem slender, hollow, glabrous, colored like the pileus; spores subglobose, angular, uninucleate, .0003 to .0004 inches in diameter.

Pileus 6 to 12 lines broad; stem 1.5 to 2.5 inches long, 1 line thick.

Among sphagnum and in wet woods, Lake Pleasant. August.

The species is easily known by its nearly uniform grayish color and its globose spores.

Galera flava *n. sp.*

Pileus thin, ovate or campanulate, obtuse, finely plicate-striate to the middle, yellow; lamellæ thin, narrow, close, adnate, at first whitish, then yellowish-cinnamon; stem equal or slightly tapering upward, hollow, sprinkled with white mealy particles, slightly striate at the top, white or slightly tinged with yellow; spores brownish-ferruginous, ovate or subelliptical, .0005 inches long; .0003 broad.

Pileus 6 to 12 lines broad; stem 2 to 3 inches long, 1 to 2 lines thick.

Damp vegetable mold in woods. Freeville, Tompkins county. July.

The pileus is moist or subhygrophanous, and when dry it appears to be sprinkled with shining atoms. The yellow epidermis sometimes breaks up into squamules.

Agaricus hæmorrhoidarius *Schulzer.*

Ground under hemlocks. Menands August.

This species is easily known, when fresh, by wounds upon any part of it quickly changing to red, as if about to bleed. The habitat usually ascribed to it is "About the roots of oaks," but our specimens were found growing under a hemlock tree. Gillet gives Fries as the author of the species, Fries ascribes it to Kalchbrenner and Kalchbrenner to Schulzer.

The pileus is at first covered with a fawn-colored or tawny-brown tomentum which soon breaks up and forms scales. The flesh is white and the lamellæ are at first whitish, soon flesh-colored, then brown. The spores are brown, elliptical, .0002 to .00025 in. long, .00016 broad.

Hypholoma subaquilum *Banning.*

Decaying wood. Adirondack mountains. August and September.

This species is closely allied to *H. appendiculatum*, but may be separated by its darker color, and especially by the darker color of its lamellæ.

Russula roseipes *Bres.*

Under hemlock trees. Menands. August. It might easily be taken for a small form of *R. alutacea*, from which its more strongly striate-tuberculate margin distinguishes it. It is edible.

Dædalea quercina *Fr.*

Dead stumps and trunks of oak. Selkirk, Albany county. August.

Septoria podophyllina *Pk.*

Living and languishing leaves of mandrake, *Podophyllum peltatum.* Freeville. July.

Glœosporium nervisequum *Sacc.*

Living leaves of sycamore, *Platanus occidentalis.* McLean, Tompkins county. July.

This fungus attacks the foliage and young branches early in he season and is often quite injurious to the tree. It manifests its presence either by discolored spots which follow the principal veins of the leaf, or by producing broad and irregular brown patches in the leaf. When the attack is severe it kills the entire leaf or even the branch and all its leaves. Indeed, it is said sometimes to be fatal to the tree.

Glœosporium populinum *n. sp.*

Spots small, 1 to 2 lines broad, nearly orbicular, reddish-brown, often paler in the center and then appearing to be surrounded by a broad darker margin, paler on the lower surface; heaps of spores hypophyllous, either single and central or several more or less concentrically arranged: spores subcylindrical, often a little curved, supported by slender sporophores, oozing out and forming a reddish mass, .001 to .0016 in. long, about .00012 in. broad.

Living leaves of poplar, *Populus grandidentata*. Freeville. July.

This species may be distinguished from other species of Glœosporium growing on poplar, by its narrow elongated spores which are not much unlike those of some species of Septoria. From Cylindrosporium it is separated by the agglutinated spore mass. From *G. stenosporum*, which occurs in Kansas on leaves of *Populus monilifera*, it differs in its smaller darker-colored spots, and in its darker-colored spore-masses, which are hypophyllous, and in its longer and simple spores.

Glœosporium allantoideum *n. sp.*

Heaps minute, numerous; spores cylindrical, curved, obtuse, .0005 to .0008 in. long, oozing out and forming minute whitish masses which are concentrically arranged.

Rind of pumkin. Lyndonville. January. *C. E. Fairman*.

The heaps are sometimes overrun by mucedinous filaments. The species is distinguished from *G. lagenarium* by its curved spores.

Puccinia Zopfii *Wint.*

Living leaves of cowslips, *Caltha palustris*. Buffalo. *G. W. Clinton*.

In reviewing some specimens of Puccinia on leaves of *Caltha palustris* sent me several years ago by the late Judge Clinton, I find some belonging to this species. He also sent me the true *Puccinia Calthæ*, so that these species meet on common ground in the western part of the State.

Ustilago Tritici *Jensen.*

Heads of wheat, *Triticum vulgare*. Meadowdale, Albany county. June.

This and the next following species have by most writers been included with the smut on oats as mere forms or varieties of the one comprehensive species *Ustilago segetum*. But Jensen indicated their distinct character, and the investigations of Professors Kellerman and Swingle have confirmed his views.

Ustilago Hordei *K. & S.*

Heads of barley, *Hordeum vulgare.* Sevey, St. Lawrence county and McLean, Tompkins county. July.

Another species of smut, *Ustilago nuda* also occurs on barley, but I have seen no specimens of it. It differs from the present species in having less globose spores, with the epispore spiny and the color of the spores in the mass brown instead of black.

Doassansia Martianoffiana *Schrœt.*

Living leaves of pondweed. Near the outlet of Marl pond, Cortland county. July. The water in which the pondweed grew had evaporated and left the plants stretched upon the muddy soil. They were small and apparently dwarfed, and now being deprived of their normal quantity of water is it any wonder that they yielded to the attacks of their parasite?

Entyloma Physalidis *Wint.*

Living leaves of the viscid ground cherry, *Physalis Virginiana.* Menands. August.

Peronospora Rubi *Rabh.*

Living leaves of blackberry, *Rubus villosus.* Cold Spring, Long Island. July. *B. D. Halsted.*

Peronospora obovata *Bon.*

On corn spurry, *Spergula arvensis.* Liberty, Sullivan county. July. *Halsted.*

Sporotrichum parasiticum *n. sp.*

Effused, minute, white; hyphæ very slender and delicate, irregularly branched; spores numerous, minute, elliptical, .00012 to .00016 inches long, .00008 broad.

On excrescences of the black knot, *Plowrightia morbosa.* Menands. July.

This fungus forms a thin white coating over the surface of the excrescence. It is often quite conspicuous because of the dark color of the background. It attacks young as well as old black knots, and in the former case it apparently prevents the free formation of the perithecia of the black knot, and should therefore be regarded as a useful fungus. It is sometimes accompanied by *Trichothecium roseum.*

Septocylindrium scirpinum *n. sp.*

Forming minute, somewhat confluent, flocculent white tufts; spores narrowly fusiform, pointed at one or both ends, .0005 to 002. inches long, .00016 to .00025 broad, with one to six septa.

Dead spikelets of cotton grass, *Eriophorum cyperinum*. Lake Pleasant. August.

Pseudopeziza Medicaginis *Sacc.*

Living or languishing leaves of nonesuch, *Medicago lupulina*. Menands. July.

Sphærotheca mors-uvæ *B. & C.*

Fruit and leaves of gooseberry, *Ribes Cynosbati*. Sprakers, Montgomery county, and Bergen, Genesee county. June.

Sphærotheca Humuli *Burrill.*

Living leaves of agrimony, *Agrimonia Eupatoria*. Newburgh. Also of marsh five-finger, *Potentilla palustris*. Adirondack mountains. Specimens have also been collected on *Rubus odoratus*, *R. triflorus*, *Poterium Canadense* and *Physocarpus opulifolius* which apparently belong here.

Erysiphe Galeopsidis *DC.*

Living leaves of hemp nettle, *Galeopsis Tetrahit*, rough hedge nettle, *Stachys aspera*, mad dog skullcap, *Scutellaria lateriflora*. Tyre, Seneca county and Sandlake. August and September.

The following species are extra-limital. Specimens of them have been sent to me for identification, but I find no descriptions that harmonize with their characters. They are therefore recorded here as new species.

Mycena strobilinoidea *n. sp.*

Pileus thin, subcampanulate, obtuse, glabrous, bright scarlet; lamellæ whitish, reddish on the edge; stem short, glabrous but with a tawny villosity at the base, colored like but a little paler than the pileus.

Pileus 4 to 6 lines broad; stem about 1 inch long.

Under *Abies subalpina*. Olympia mountain, Washington. "Appearing soon after the snow disappears." *L. F. Henderson.*

The species belongs to the section Calodontes, and is distinguished from *M. strobilina* by its obtuse pileus and the colored villosity at the base of the stem.

Clavaria H~~e~~arveyi *n. sp.*

Gregarious or subcæspitose, simple or with a few branches, often compressed or irregular, scarcely one inch high, golden-yellow, sometimes brownish at the apex, flesh white, branches when present short, simple or terminating in few or many more or less acute denticles ; spores globose, .0003 in. broad, minutely roughened ; mycelium white.

Ground under hemlock trees. Orono, Maine. September. *F. L. Hervey.*

Allied to *C. fastigiata* and *C. muscoides* but distinct from both by its more irregular and less branching character and by its larger spores.

Exobasidium Cassiopes *n. sp.*

Attacking the young shoots and all their leaves, thickening and enlarging them; spores oblong, .0005 in. long.

On *Cassiope Mertensiana.* Olympia, Washington. *Henderson.*

The galls are very variable in color, and may be either pinkish, red, purple or whitish purple.

Nidularia candida *n. sp.*

Peridium externally tomentose, white, becoming cup-shaped, within glabrous, snowy-white, the mouth wide, entire; peridiola numerous, .035 to .05 in. broad, lenticular, brown, marked with numerous diverging and intercrossing blackish lines; spores broadly elliptical, .0003 in. long, .0002 broad.

Ground among mosses. Olympia, Washington. July. *Henderson.*

All the peridia seen were fully open, and therefore their shape and character when young remain unknown. The size and shape of the native plant are similar to those of *Crucibulum vulgare.* The peridiola are smaller than in that species and of a darker color. The absence of the funiculus places the species in the genus Nidularia.

Septoria Peraphylli *n. sp.*

Spots rather large, 2 to 4 lines broad, one or two on a leaf, suborbicular, reddish brown, sometimes with a whitish center above; perithecia epiphyllous, slightly prominent, black, shining; spores subcylindrical, straight or somewhat curved, or subflexuous and slightly unequal, few or many-nucleate, sometimes obscurely uniseptate, colorless or slightly colored, .001 to .0016 in. long, .00025 to .0003 broad.

Living leaves of *Peraphyllum ramosissimum.* Southern Utah. June. *M. E. Jones.*

This is an aberrant species with the spores unusually broad and variable and the perithecia rather large and somewhat unequal.

Septosporium Equiseti *n. sp.*

Hyphæ forming minute tufts, the fertile very short, bearing acrogenous spores, the sterile longer, septate, colored; spores elliptical, usually with three transverse septa and one or two longitudinal ones, colored, .001 in. long, .0005 broad.

Dead tips of branches of *Equisetum arvense.* West Virginia. June. *C. F. Millspaugh.*

Uromyces deciduus *n. sp.*

Spots none; sori minute, rotund, pulverulent, hypophyllous or amphigenous, often surrounding the young branches and occupying the whole lower surface of the leaflets, less abundant on the upper surface, rusty-brown; teleutospores oblong-illiptical or oblong-pyriform, .0008 to .0012 in. long, .0005 to .0006 broad, with the epispore roughened or verruculose, quickly deciduous from the short pedicel, a few abruptly clavate or capitate paraphyses intermingled with the teleutospores, .0012 to .0016 in. long.

Living leaflets and young branches of the screw bean, *Prosopis pubescens.* Mescal mountains, Arizona. May. *Jones.*

This species is easily known by its quickly deciduous spores and the intermingled capitate paraphyses. The pedicels are from one-fourth to one-half the length of the spores. "The fungus does not kill the leaves but causes the stem to form fascicles or bird's-nest clusters of branchlets near the end of the present year's growth."

(D.)

REMARKS AND OBSERVATIONS.

Corydalis flavula *D. C.*

In the Manual, Pennsylvania is given as the northeastern limit in the range of this species. It has been collected in New York, in Ulster county by the late W. H. Leggett, and in Onondaga county by Prof. L. E. Underwood.

Nasturtium lacustre *Gr.*

A terrestrial form of this plant occurs along the inlet of Owasco lake. The leaves are early and easily deciduous

Hudsonia tomentosa *Nutt.*

Sandy shore of Lake Pleasant, Hamilton county.

The plants in this remarkably inland station differ so much from the typical form of the species that I am disposed to consider them a good variety. They are intermediate between *H. tomentosa* and *H. ericoides* and may therefore bear the name

Var. *intermedia.* Stems and branches more slender and longer; leaves narrow, less imbricating and less tomentose; flowers on pedicels mostly a little longer than the leaves.

The variation in the leaves, downy tomentum and pedicels is n every case toward *H. ericoides.*

Viola blanda *Willd.* var. renifolia *Gr.*

Mossy ground in woods. Helderberg mountains.

Viola cucullata *Ait.*

A form with variegated flowers. Gouverneur. *Mrs. E. C. Anthony.*

Lychnis Flos-cuculi *L.*

Grassy yard. Newark. *E. L. Hankenson.*

The specimens are unusually small and few-flowered.

Lathyrus ochroleucus *Hook.*

Common about Carrollton. June.

Fragaria Indica *L.*

Banks of Onondaga creek. *Mrs. L. L. Goodrich.*

The specimens sent by Mrs. Goodrich appear to be dwarfed. They are very much smaller than those from Staten Island. The fruit is borne singly in the axils of the leaves of the runners. The seeds are superficial on the receptacle as in *F. vesca* and in our specimens are bright red, thus giving a beautiful appearance to an insipid fruit. The petals are yellow. The plant has been introduced and probably has escaped from cultivation.

Cicuta bulbifera *L.*

In our State this plant usually blossoms and fruits very sparingly. Generally but a single umbel of flowers is developed and that terminates the main stem. Sometimes the two uppermost branches, which usually overtop the stem, are also terminated each by an umbel of flowers. Rarely very thrifty plants are still better furnished with flowers. The branches are generally well furnished with bulblets. The more the flowers the fewer the bulblets.

Solidago uliginosa *Nutt.*

Lake Pleasant. August.

This is a peculiar form in which the panicle is small, dense, oblong or thyrsiform and mostly somewhat recurved.

Aster undulatus *L.*

A very noticeable form of this species is found in dry sandy soil at Karner and also on Long Island. The leaves are thick, scabrous above, wavy on the margin, broadly or narrowly ovate, dark colored and all, except three or four near the base of the stem, are sessile by a heart-shaped base. The branches are clothed by ovate or oblong-ovate abruptly pointed bracts and bear the flowers mostly near the end either singly or somewhat clustered.

It might easily be thought to be a hybrid between *Aster undulatus* and *A. patens* which is generally associated with it or found near it, though this species flowers earlier than *A. undulatus.*

Aster cordifolius *L.* var. **lævigatus** *Porter.*

Woods and open places. Lake Mohonk, Ulster county. September.

This variety of the heart-leaved aster was discovered by Professor Porter in Pennsylvania. It also occurs in New Jersey, where Professor Britton says, it is quite as abundant as the species itself. It has also been reported from Staten Island and Westchester county in this State, but has not before been found so far north as Lake Mohonk. It is a variety strongly marked by the wing-margined petioles, the longer smooth leaves with pale under surface and more blunt and oppressed serratures. The flower-heads are generally less numerous and larger than in the type. Professor Porter remarks that perhaps it is a good species, and also that it is suggestive of a hybrid between *Aster cordifolius* and *A. lævis.*

Aster vimineus *Lam.*

This species and *A. diffusus* are not easily separated in some of their forms. Near Wells, Hamilton county, an Aster is common which has the narrow leaves of *A. vimineus*, but the hairy stem of *A. diffusus.*

Aster Novi-Belgii *L.*

A form was collected at Northville in which the heads are unusually small, being about three lines long. They are about the size of the heads of *A. dumosus.*

At Lake Pleasant, a small form occurs in which the stem is one to two feet high, rarely branched and bearing from one to six flowers of usual size. At Wells is a form like this in all respects except that the stem and midvein of the leaves are hairy as in *A. puniceus*, to which, on this account the specimens have been referred, although the leaves are much more narrow than in ordinary forms of *A. puniceus.* It may be a question whether these should be considered as a narrow-leaved, few-flowered form of *A. puniceus*, or a hairy-stemmed, few-flowered form of *A. Novi-Belgii.* Both forms are apparently due to poor soil.

A form was collected near Wells, having the long linear leaves of variety *elodes.* They are four to four and a half inches long and not more than three lines wide.

Erigeron strigosus *Muhl*, var. **discoideus** *Robbins.*

Roadsides and pastures. Alcove. *C. L. Shear.* Menands and Grafton. June and July.

This variety appears, at first sight, as if its rays had been closely eaten by insects.

Lactuca leucophæa *Gr.* var. **integrifolia** *Gr.*

Along the railroad near Carrolton. September. Probably introduced from the west.

Polygonella articulata *Meisn.*

The plant is abundant in the sandy region between Albany and Schenectady. Its flowers are generally described as rose-colored or flesh-colored. They are sometimes white. Nearly all the plants in the region mentioned had white flowers the present season though in former seasons they have been generally rose-colored. What made the difference?

Populus balsamifera *L.*

Not rare in the Adirondack region. Near Elizabethtown, Essex county, are trees which appear to connect the species and the variety *candicans*. The leaves on the older branches are truncate or subcordate, but those on the young and thrifty branches and shoots from the roots are somewhat pointed at the base as in the type. The hairiness of the petiole is scarcely perceptible.

Clintonia umbellata *Torr.*

Fine flowering specimens were found near Carrollton. The leaves and scape are generally more or less pubescent. The umbel consists of six to eighteen small white flowers in a close erect cluster. Usually there is a bract just below the umbel. It grows in damp places either in pastures or in woods, and is in flower in June.

Erythronium Americanum *Ker.*

The bulbs of this plant sometimes emit long white leafless runners or offsets which come to the surface and after describing an irregular curve a few inches long, thrust the growing tip beneath the surface again. One bulb, dug from beneath the decaying leaves, had a leaf at one end and two offsets growing from the other.

Cyperus dentatus *Torr.*

Abundant on the sandy shore of Lake Pleasant. The spikes are changed to leafy tufts in almost every plant in this locality.

Eleocharis tuberculsosa *R. Br.*

Erastina, Richmond county. November. *N. L. Britton.*

Scirpus sylvaticus *L.* var. **digynus** *Bœckl.*

This sedge is apparently more common than has been supposed. Fine specimens were obtained near Wilton, Saratoga county. It maintains its distinguishing characters with great uniformity and is apparently a good and distinct species, easily recognizable at a glance and at once distinguishable from *S. sylvaticus* by its more densely clustered darker colored spikelets and by the purplish red sheaths that give a variegated appearance to the stem.

Scirpus polyphyllus *Vahl.* var. **macrostachyus** *Bœckl.*

Lake Pleasant. August. This variety is not indicated in the Manual. It differs from the ordinary form of the species as represented in our flora, in being less leafy, in having much longer and darker colored spikelets, shorter achenes and longer, more slender and more sparsely and irregular barbed bristles. In general appearance it is quite unlike the leafy form with short-ovate, densely clustered yellow-brown spikelets. Occasionally a slender pedical supporting a cluster of spikelets rises from the axil of the uppermost leaf.

Eriophorum cyperinum *L.* var. **laxum** *W. & C.*

This variety was found at Lake Pleasant growing, in several instances, side by side with the typical form of the species. In addition to the distinguishing characters mentioned in the Manual it was found that when growing side by side and, so far as could be seen, subjected to exactly the same conditions, the variety reached maturity much earlier than the type. The woolly bristles of the mature plant are much paler and less dense in the mass. Sometimes the spikelets are all contracted into a single dense cluster one to two inches in diameter.

Carex flava *L.* var. **graminis** *Bailey.*

Borders of lakes. Adirondack mountains. July. In our specimens the perigynia often have the beak deflexed as in the type, but in other respects the agreement with the description is good.

Carex granularis *Muhl.* var. **Haleana** *Porter.*

Swamp near Meadowdale. June.

Carex alopecoidea *Tuckm.*

Plentiful about Lyons, Wayne county. June.

Muhlenbergia sylvatica *T. & G.*

A form with branches erect and with purplish densely flowered panicles occurs about Lake Pleasant and also at Wells.

Muhlenbergia sobolifera *Trin.*

This species is common enough in the lower part of the valley of the Hudson and on the Shawangunk mountains, but I have not observed it north of Saugerties.

Agrostis vulgaris *With.*

This grass grows freely in sandy soil. A very stout, rigid form with dark purple panicles was found growing in the loose sharp sand along the shore of Lake Pleasant.

Poa compressa *L.* var. **sylvestris** *Torr.*

This variety grows in open places as well as in woods. Fine specimens were found at Menands. It is easily recognized by its short open or spreading panicle.

Asplenium montanum *Willd.*

This fern was discovered to be an inhabitant of our State about twenty years ago. It was then found growing from crevices in the rocks about Lake Mohonk. This has remained its only known station in our State until the present season, in which I learn it has been found in the Catskill mountains, a station still farther to the north. Mr. Smiley informs me that it has been found in several new places about Lake Mohonk, that it appears to be increasing in abundance and that it is in no danger of extermination there, for it grows on the faces of the cliffs in places where it is wholly inaccessible to the most eager collector.

Collybia radicata *Relh.* var. **furfuracea** *n. var.*

Pileus and lamellæ as in the typical form: stem more slender, generally slightly tapering upward, *even, furfuraceous*, more or less brownish.

This form is much more common with us than the type. The variation is toward *C. longipes*, which has the stem villose rather than furfuraceous, and its pileus is dry and velvety, but in our plant it is glabrous and viscid or glutinous when moist. As in the type, the pileus is sometimes umbonate. There is a dwarf form which is quite common. In it the pileus is from six to sixteen lines broad and the stem proportionably slender. It might be designated as var. *pusilla*.

(E.)

NEW YORK SPECIES OF OMPHALIA.

Omphalia *Fr.*

Pileus thin, submembranaceous. Lamellæ decurrent. Stem cartilaginous, stuffed or hollow, somewhat thickened upwards. Spores white.

The species of Omphalia are generally small, the pileus rarely exceeding an inch or an inch and a half in diameter. It is usually umbilicate, a character which gives name to the genus, the word Omphalia being derived from the Greek, ὀμφαλος an umbilicus. It is sometimes either umbilicate or umbonate even in the same species. It is generally very thin, almost or quite membranous, and most often hygrophanous, so that generally it is striate or striatulate when moist. When mature, it assumes a funnel shape in a few species and then simulates some species of Clitocybe, but from these the species of Omphalia may be distinguished by their cartilaginous stem. From species of Mycena they are separated by their truly decurrent lamellæ.

They grow chiefly on decaying wood or other vegetable matter or on soil largely composed of such matter. They are fond of moisture and are to be sought in damp shaded places or in wet weather. Some occur in cold situations or at high altitudes, and others appear to be capable of enduring great variations in temperature. *O. Campanella*, one of our most common and most abundant species may be found throughout the season. It may even be found in sheltered cavities or on the under side of decayed prostrate trunks when the ground is covered with snow. On the other hand many species are quite rare, and some here described have been found but once in many years of exploration. Because of their small size the species are not regarded as important for the table and none are classed as edible.

The grouping of the species in the Friesian arrangement depends upon the primary form of the pileus, the character of its margin and the degree of proximity of the lamellæ to each other, but these characters have not appeared·to me to be very sharp and satisfactory and in the following pages I have disregarded them.

O. subgrisea has been found to belong to another genus, and *O. tubæformis* is probably a large form of *Marasmius salignus.*

SYNOPSIS OF THE SPECIES.

Lamellæ white, whitish or grayish 1
Lamellæ some other color 14
1. Plant wholly white 2
1. Plant not wholly white 5
2. Pileus viscid when moist 3
2. Pileus not viscid 4
3. Stem adorned with minute gland-like protuberances. O. Rhododendri.
3. Stem without protuberances .... O. Austini.
4. Pileus somewhat funnel-form .... O. scyphoides.
4. Pileus convex .... O. stellata.
4. Pileus hemispherical .... O. gracillima.
5. Pileus yellowish or orange 6
5. Pileus some other color 8
6. Lamellæ arcuate 7
6. Lamellæ subtriangular .... O. umbellifera.
7. Pileus 6 lines or more broad .... O. fibuloides.
7. Pileus less than 6 lines broad .... O. Fibula.
8. Pileus with the umbilicus darker 9
8. Pileus uniformly colored 10
9. Pileus 6 lines or more broad .... O. Oculus.
9. Plleus 2 to 4 lines broad .... O. Swartzii.
10. Pileus dotted with blackish points ...... O. Gerardiana.
10. Pileus without blackish points 11
11. Lamellæ uniformly colored 12
11. Lamellæ with the edge darker .... O. montana.
12. Pileus less than 6 lines broad .... O. corticola.
12. Pileus more than 6 lines broad 13
13. Pileus rugose on the disk .... O. rugosidisca.
13. Pileus even on the disk, glabrous .... O. striipilea.
13. Pileus silky or flocculose .... O. Epichysium.
14. Pileus viscid .... O. lilacifolia.
14. Pileus not viscid 15
15. Pileus olive green .... O. olivaria.
15. Pileus some other color 16
16. Stem bright yellow .... O. chrysophylla.
16. Stem pallid or rufescent .... O. pyxidata.
16. Stem date-brown .... O. Campanella.

Omphalia rugosidisca *Pk.*

RUGOSE-DISKED OMPHALIA.

(Report 26, p. 55.)

Pileus thin, broadly convex or nearly plane, umbilicate obtuse or slightly umbonate, sometimes slightly umbilicate, *rugose on the disk*, glabrous, hygrophanous, brown and striatulate when moist, paler when dry, the thin margin often wavy; lamellæ narrow, close, arcuate, decurrent, white, *emitting drops of a watery juice where cut or broken;* stem short, glabrous, hollow, often curved, whitish or colored like the pileus; spores elliptical, .00025 to .00028 in. long, .00016 broad.

Pileus 6 to 12 lines broad; stem about 1 inch long, .5 to 1 line thick.

Decaying prostrate trunks of coniferous trees, especially hemlock. Adirondack mountains, Otsego, Ulster, Albany and Rensselaer counties. July to September.

The species is remarkable because of the watery juice which oozes in drops from the lamellæ of the fresh plant where cut or broken.

Omphalia lilacifolia *Pk.*

LILAC-LEAVED OMPHALIA.

(*Agaricus lilacinus* Rep. 24, p. 63. *A. lilacifolius* Rep. 29, p. 66.)

Pileus convex, deeply umbilicate, glabrous, *viscid*, hygrophanous, dingy-yellow with a slight greenish tinge and striatulate when moist, bright sulphur-yellow when dry; lamellæ close, narrow, arcuate, decurrent, *pale lilac;* stem equal, glabrous, hollow, *viscid*, yellowish with a *pale lilac-colored mycelium at the base;* spores subelliptical, .0002 to .00025 in. long, about .00012 broad.

Pileus 6 to 12 lines broad; stem 6 to 12 lines long, .5 to 1 line thick.

Decaying prostrate trunks of hemlock. Oneida and Albany counties. September.

This is a very distinct species, remarkable for its viscid pileus and stem and for the peculiar hue of the lamellæ and mycelium.

Omphalia Oculus *Pk.*

EYE-SPOT OMPHALIA.

(Report 23, p. 84.)

Pileus convex, umbilicate, often with a small umbo or papilla in the umbilicus, *minutely squamulose*, dingy-white, *the umbilicus blackish-brown;* lamellæ white, narrow, close, subarcuate; stem hollow, minutely squamulose or furfuraceous, easily splitting, often curved, whitish: spores subglobose, .00016 to .0002 in. in diameter.

Pileus 6 to 12 lines broad; stem 1 to 1.5 in. long, 1 to 2 lines thick.

Prostrate trunks of hemlock in woods. Adirondack mountains. August.

The dark colored umbilicus is a noticeable feature. The plant has not been found since its discovery in 1869. The species is evidently rare. It is apparently closely related to *Collybia abundans*, from which it is distinguished by its more decided darker umbilicus and squamulose pileus.

Omphalia olivaria *Pk.*

OLIVE-GREEN OMPHALIA.

(Report 25, p. 76.)

Pileus convex, umbilicate, glabrous, *olive-green*; lamellæ subdistant, arcuate-decurrent, *pale-yellow*; stem equal, short, glabrous, hollow, colored like the pileus; spores subglobose or broadly elliptical, .00025 to .00028 in. long, about .0002 in. broad.

Pileus about 1 in. broad; stem about 1 in. long, 1 line thick.

Burnt ground under balsam fir trees. North Elba, Essex county. July.

This plant was discovered in 1871. It has not since been found.

Omphalia chrysophylla *Fr.*

GOLDEN-LEAVED OMPHALIA.

(Hym. Europ. p. 156. Syl. Fung. Vol. V, p. 312.)

Pileus convex or nearly plane, flocculose, umbilicate, hygrophanous, yellowish-brown when moist, paler when dry, the spreading margin sometimes reflexed; lamellæ broad, distinct, distant, strongly decurrent, *bright-yellow*; stem equal, tough, hollow, sometimes curved, even, glabrous, villous at the base, *yellow*; spores oblong-elliptical, .0004 to .00045 in. long, .00016 to .0002 broad.

Pileus about 1 in. broad; stem 1 to 1.5 in. long, 1 to 2 lines thick.

Decaying wood of coniferous trees. Adirondack mountains, Schoharie and Rensselaer counties. August and September.

Var. *chrysea.* (Agaricus chryseus, Rep. 23, p. 85.)

Whole plant yellow, lamellæ rather narrow.

This differs from the true *O. chrysophylla* so slightly that it seems best to regard it as a mere variety of that species. The pileus varies in depth of coloring and the spores in the American plant, from which the dimensions here given were taken, are somewhat longer than the dimensions ascribed to those of the European plant. This fungus is not common.

Omphalia pyxidata *Bull.*

CUP-SHAPED OMPHALIA.

(Hym. Europ. p. 157. Syl. Fung. Vol. V, p. 313.)

Pileus at first convex or nearly plane and umbilicate, then funnel-form, glabrous, hygrophanous, brick-red or reddish-brown when moist and wholly radiate-striate, or on the margin only, pale when dry and flocculose or slightly silky; lamellæ narrow, subdistant, decurrent, tinged with flesh-color, then *yellowish;* stem equal, tough, glabrous, stuffed or hollow, *pallid or reddish;* spores subelliptical, .00025 to .0003 in. long, .00016 to 0002 broad.

Pileus 6 to 12 lines broad; stem about 1 in. long, 1 line thick.

Grassy or mossy ground in pastures. Lewis county. September.

This is evidently a rare species with us, as it has not been observed since its discovery here in 1870.

Omphalia striipilea *Fr.*

STRIATE-CAPPED OMPHALIA.

(Hym. Europ. p. 157. Syl. Fung, vol. V, p. 314)

Pileus membranous, convex or plane, umbilicate, never funnel-form, *glabrous*, hygrophanous, livid brown and beautifully *striate when moist*, even and paler when dry; lamellæ not crowded, slightly decurrent, whitish; stem equal, rather firm and tough, glabrous, hollow, often flexuous, *brownish;* spores nearly or quite globose, .00025 to .00028 in. broad.

Pileus 6 to 12 lines broad; stem 1 to 1.5 in. long, about 1 line broad.

In groves of spruce and balsam fir. Essex county. September.

Omphalia Epichysium *Pers.*

OVERSPREADING OMPHALIA.

(Hym. Europ. p. 158. Syl. Fung. vol. V, p. 314)

Pileus membranous, soft, nearly plane, umbilicate, hygrophanous, sooty-gray and striate when moist, paler when dry and *silky or flocculose;* lamellæ narrow, subdistant, slightly decurrent, whitish or cinereous; stem equal, somewhat hollow, glabrous, cinereous; spores elliptical, .0003 in. long, .00016 broad.

Pileus 6 to 12 lines broad; stem about 1 inch long, 1 line thick.

Decaying wood and dead trunks of trees. Adirondack mountains. August.

Omphalia Gerardiana *Pk.*

GERARD'S OMPHALIA.

(Agaricus Gerardianus. Rep. 26, p. 54)

Pileus thin, nearly plane or soon funnel-form, generally umbilicate, fragile, *dotted with minute blackish points*, hygrophanous, brown or grayish-brown and striatulate when moist, paler when dry; lamellæ narrow, subdistant, decurrent, sometimes forked, whitish or cinereous: stem long or short, glabrous, stuffed or hollow, colored like the pileus; spores oblong or ovate-oblong, .0003 to .00045 in. long, about .00016 broad.

Pileus 8 to 12 lines broad; stem 1 to 2.5 in. long, .5 to 1 line thick.

Growing in Sphagnum. Rensselaer, Ulster and Seneca counties. June.

This fungus was formerly referred to the subgenus Clitocybe, but later observations indicate a closer relationship to Omphalia. It is closely related to such species of Omphalia as *O. affricata*, *O. telmatiaea*, *O. sphagnicola* and *O. philonotis*. From all these it differs in the peculiar adornment of the pileus.

Omphalia montana *Pk.*

MOUNTAIN OMPHALIA.

(Report 27, p. 94.)

Pileus thin, umbilicate, glabrous, blackish-brown; lamellæ distant, decurrent, whitish, *darker on the edge*, stem equal, glabrous, colored like the pileus; spores broadly elliptical, about .0003 in. long.

Pileus 6 to 8 lines broad; stem about 1 inch long, 1 line thick.

Thin soil covering rocks. Mount Marcy. August. Very rare. Not found since 1873. Remarkable for the discolored edge of the lamellæ.

Omphalia umbellifera *L.*

UMBEL-BEARING OMPHALIA.

(Hym. Europ. p. 161. Syl. Fung. vol. V, p. 321.)

Pileus convex or plane, somewhat obconic, hygrophanous, radiate-striate when moist, whitish or pale-yellow; lamellæ *broad, distant, somewhat triangular*, white; stem short, stuffed, becoming hollow; spores broadly elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Pileus 4 to 8 lines broad; stem 6 to 10 lines long, .5 line thick, ground or decaying wood.

Var. *scabriuscula*. (*Agaricus scabriusculus* Rep. 23, p. 85.)

Plant commonly larger, pileus flocculose-pulverulent, yellow; lamellæ white or pale-yellow, the interspaces venose; stem hairy-squamulose.

Decaying wood. Adirondack mountains.

This is a very variable species. It occurs from June to September, and grows on ground largely composed of decomposed vegetable matter or on much decayed wood. In this State it seems to be limited in its range to the Adirondack region and there it ascends to the tops of the highest peaks. Its pileus and broad lamellæ together have an obconic shape. It is often irregular or misshapen. The stem may be either glabrous, pruinose or hairy-squamulose. Sometimes it is pubescent or villose at the base only. The pileus is either glabrous or silky or flocculose-pulverulent.

Omphalia Campanella *Batsch.*

BELL-SHAPED OMPHALIA.

(Hym. Europ. p. 162. Syl. Fung. vol. V, p. 327.)

Pileus thin, rather tough, hemispherical or convex, glabrous, umbilicate, hygrophanous, yellow-ferruginous and striatulate when moist, paler when dry; lamellæ moderately close, arcuate, decurrent, yellowish, the interspaces venose; stem firm, rigid, hollow, *brown*, often paler at the top, *tawny-strigose at the base;*

spores elliptical, .00024 to .00028 in. long, .00012 to .00016 broad. Pileus 4 to 8 lines broad; stem about 1 in. long, scarcely 1 line thick.

Much decayed wood of coniferous trees. Very common. May to November.

This pretty little species occurs everywhere in woods and shaded places where there are prostrate, much decayed trunks of hemlock, spruce and pine. It makes its appearance as soon as the weather is moderately warm in spring, and successive crops develop till all growth is stopped by the return of the cold weather of winter. Rarely it grows on ground well filled with decaying vegetable matter. It usually grows in large flocks or dense clusters but sometimes is more scattered. It is the most frequent and most abundant of our species of Omphalia and is easily recognized by its yellowish-red pileus, dark-brown stem and the little ball or tuft of tawny-colored coarse hairs at the base of the stem. The pileus varies some in the intensity of its color but all the hues of the moist plant appear to be mixtures of yellow and dull red in different proportions. In the dry plant, the yellow predominates. The mycelium of this species is regarded as destructive to the wood of coniferous trees.

Omphalia fibuloides *Pk.*

BUTTON-LIKE OMPHALIA.

(Report 24, p. 63.)

Pileus thin, convex, deeply umblicate, glabrous, hygrophanous, dull orange and striatulate when moist, paler when dry; lamellæ *rather close*, arcuate strongly decurrent, white, the *interspaces venose;* stem equal, glabrous, hollow, colored nearly like the pileus; spores *elliptical*, .0003 in. long, .0002 broad.

Pileus 6 to 10 lines broad; stem 1 to 2 in. long, scarcely 1 line thick.

Burnt, mossy ground. Lewis and Sullivan counties. September.

It is closely related to *Omphalia Fibula*, which it resembles in color, but from which it may easily be distinguished by its much larger size, more robust habit and venose interspaces. Its spores also are larger than in that species.

Omphalia Fibula *Bull.*

BUTTON OMPHALIA.

(Hym. Europ. p. 164. Syl. Fung. vol. V, p. 331.)

Pileus membranous, commonly convex or hemispherical and umbilicate, striatulate when moist and varying in color from pale-yellow to orange, even and paler when dry; lamellæ *distant*, arcuate, strongly decurrent, white; stem slender, commonly long in proportion to the breadth of the pileus, colored like or a little paler than the pileus; spores *narrowly elliptical*, minute, .00016 in. long, .0008 broad.

Pileus 2 to 5 lines broad; stem 1 to 2 in. long, scarcely .5 line thick.

Mossy ground and prostrate mossy trunks of trees in woods or open places. Common. April to November.

Var. *conica*. Pileus conical, not umbilicate, sometimes papillate. Fulton county.

This is a very small species and of frequent occurrence in damp mossy places, but rarely abundant. Its pileus varies in color from almost white to bright orange. Large forms approach the preceding species in appearance.

Omphalia Swartzii.

Agaricus Fibula var. *Swartzii* Fr.

SWARTZ'S OMPHALIA.

(Hym. Europ. p. 164. Syl. Fung. vol. V, p. 331.)

Pileus rather firm, even, whitish, *disk brownish;* stem whitish, somewhat *violaceous at the top*. In other respects like the preceding species.

Although this plant scarcely differs from *O. Fibula* except in color, and is regarded by almost all mycologists as a mere variety of it, yet it is so peculiar and so constant in its color and so easily recognized that it seems best to separate it as a species.

Omphalia corticola *Pk.*

BARK-INHABITING OMPHALIA.

(Report 44, p. 18)

Pileus submembranous, convex, then expanded and umbilicate, distantly radiate-striate, *whitish or pale-cinereous;* lamellæ narrow, distant, *at first arcuate and adnate*, then truly decurrent, white;

stem short, curved, subpruinose or sprinkled with mealy particles, at first whitish with a brown base, then brown with a whitish top; spores elliptical, .0003 in. long, .00016 broad, generally containing a single large nucleus.

Pileus 2 to 4 lines broad; stem 4 to 6 lines long.

Bark of oak trees. Cattaraugus county. September.

This species is distinguished from *Mycena corticola* by its paler pileus, more narrow and, at length, decurrent lamellæ and elliptical spores.

Omphalia gracillima *Weim.*

SLENDER OMPHALIA.

(Hym. Europ. p. 165. Syl. Fung. vol. V, p. 332.)

Pileus membranaceous, *hemispherical*, papillate or umbilicate, somewhat flocculose when young, becoming glabrous, sulcate on the margin, white; lamellæ thin, somewhat distant, decurrent, the alternate ones shorter, white; stem filiform, white, inserted by a floccose base; spores elliptical, .00024 in. long .0001 broad.

Pileus 2 to 3 lines broad; stem 4 to 8 lines long.

Dead twigs and fallen leaves in wet places. Rensselaer county. September.

A very small delicate species, the whole plant pure white.

Omphalia stellata *Fr.*

STELLATE OMPHALIA.

(Hym. Europ. p. 162. Syl. Fung. vol. V, p. 325.)

Pileus membranous, *convex*, *umbilicate*, glabrous, striate, diaphanous, white; lamellæ broad, very distant, thin, decurrent, white; stem filiform, fragile, equal, glabrous, white, radiate-floccose at the base; spores subglobose or broadly elliptical, .00024 in. long, .0002 broad.

Pileus 2 to 4 lines broad; stem 6 to 10 lines long.

Decaying prostrate trunks of trees in woods. Albany county. August.

Omphalia Rhododendri *Pk.*

RHODODENDRON OMPHALIA.

(Report 27, p. 94.)

Pileus convex, umbilicate, glabrous, slightly viscid when moist, striate on the margin, white; lamellæ subdistant, arcuate, decurrent, white, beaded on the edge with gland-like protuberances; stem slender, *roughened with minute white gland-like protuberances*, white; spores oblong or narrowly elliptical, .0003 in. long, .00012 broad.

Pileus 2 to 3 lines broad; stem 6 to 8 lines long.

Dead stems of great laurel, *Rhododendron maximum.* Sullivan county. September.

Omphalia Austini *Pk.*

AUSTIN'S OMPHALIA.

(Report 28, p. 48.)

Pileus rather tenacious, convex or hemispherical, glabrous, striate, deeply umblicate, sometimes perforate, *vicid when moist*, white; lamellæ subarcuate, distant, decurrent, white; stem equal, hollow, *even*, glabrous, villose at the base, white; spores elliptical, .0003 in. long, .0002 broad.

Pileus 3 to 6 lines broad; stem 1 to 1.5 in. long, .5 line thick.

Decaying wood of spruce. Saratoga, Hamilton, Fulton and Essex counties. July and August.

Rarely the pileus has a slight smoky or grayish tint.

Omphalia scyphoides *Fr.*

CUP-LIKE OMPHALIA.

(Hym. Europ. p. 156. Syl. Fung. vol. V, p. 310.)

Pileus submembranous, plane and umbilicate or funnel-form, often irregular or somewhat eccentric, even, silky, white; lamellæ *narrow*, *close*, decurrent, white; stem short, stuffed, subvillose, white; spores elliptical, .00024 inches long, .00016 to .0002 broad.

Pileus 2 to 4 lines broad; stem 4 to 8 lines long.

Decaying wood, leaves, etc., Saratoga county. July and August.

In our specimens there is no villosity on the stem except at the base.

[FROM THE 46TH REPORT OF THE NEW YORK STATE MUSEUM OF NATURAL HISTORY.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

STATE OF NEW YORK.

Made to the Regents of the University, Pursuant to
Chapter 355 of the Laws of 1883.

BY CHARLES H. PECK.

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IN SENATE,

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ANNUAL REPORT
OF THE
STATE BOTANIST.

OFFICE OF THE STATE BOTANIST,
ALBANY, *January*, 1893.

To the Honorable the Regents of the University of the State of New York:

I have the honor to present to you my annual report for the year 1892.

Very respectfully.
CHARLES H. PECK.

REPORT.

To the Regents of the University of the State of New York:

Gentlemen.— I have the honor of communicating to you the following report of the work of the Botanist for the year 1892.

Plant specimens have been collected in the counties of Albany, Essex, Hamilton, Herkimer, Jefferson, Oneida, Queens, Rensselaer, Saratoga, Suffolk, Ulster, Washington and Warren.

Specimens have been contributed by correspondents who collected them in the counties of Albany, Chenango, Essex, Onondaga, Rensselaer, Richmond, Queens, Saratoga, Schenectady, Suffolk and Washington.

The whole number of species represented by the specimens added to the State Herbarium during the year is 338. Of these 24 are represented by contributed specimens, 314 by specimens collected by the Botanist. Of the species new to the Herbarium, 81 in all, nine belong to the contributed specimens and 72 to those collected by the Botanist. Of the 81 species, there are 30 of which I find no satisfactory description, and they are, therefore, described as new These are all fungi, two of which belong to the contributed specimens, 28 to the collected. A list of the species of which specimens have been added to the Herbarium is marked A.

Specimens of plants have been contributed by twenty-three persons. Among these contributions are many specimens of extra-limital species not included in the foregoing enumeration. A list of the names of the contributors and of their respective contributions is marked B.

The record of species not before reported, together with the localities where the specimens were respectively collected, their habitats, remarks concerning them and the descriptions of new species is marked C.

To this is added a record of a few extra-limital species received from correspondents and considered new or worthy of special notice. These descriptions and remarks follow the letter D.

Notes and observations upon species previously reported, together with descriptions of new or interesting forms and varieties of them, are marked E. To this record I have added descriptions of our New York species of Pluteolus and Galera. They are marked F.

That there is a growing demand for a better knowledge of our fungi, especially of those of economic importance, is plainly evident. The frequent inquiries received at the office of the Botanist concerning them, and the numerous specimens sent to him for identification, are an evidence of this fact. The use of the edible fleshy species for food is rapidly on the increase in this country, and yet very many who would gladly avail themselves of the agreeable and nutritious diet afforded by our numerous esculent species are debarred from doing so by a lack of the knowledge necessary for a proper discrimination between the good and the bad or worthless. With this knowledge the fear of being poisoned by the bad would no longer prevent the use of the good. With it many whose circumstances are such as to make it difficult or impossible to procure an adequate supply of animal food might often obtain a very good substitute for it by the slight labor of gathering it in the fields and woods. European works on this subject are not readily available because of their high price and are not generally satisfactory because the species in this country are not wholly the same as in that; or if the price is not great then the deficiency in the number and character of the illustrations is likely to be an objection. In view of these facts it was very gratifying to me to receive from your office directions to prepare for publication full-size colored plates of the edible and poisonous mushrooms of the State, together with brief descriptions and notes. In accordance with these directions thirty-six quarto plates, on which are represented fifty-nine edible species in natural size and color, have been prepared. Also, four plates representing in like manner three poisonous species. In all cases where it is important these plates show both the young and the mature plant and the principal variations in color and shape. Vertical sections of the plants are also depicted in order to show the internal structure and color, to which have been added, for the advantage of students of mycology and others who may be fortunate enough to possess a compound microscope, illustrations of the fruit or spores of each species. These are uniformly magnified 400 diameters.

The manuscript designed to accompany the plates consists of 19 pages of legal note, 123 pages of descriptions and remarks, explanations of the plates and two pages of index.

With these plates and their accompanying explanations, descriptions and remarks, it seems to me to be an easy matter for any one of ordinary intelligence, even though without any experience in such things, to recognize the species illustrated by them. Of the 59 edible species illustrated, 40 at least have been used as food by myself and thus proved to my own satisfaction to be good and safe. Nearly all of the remainder have been proved by friends or correspondents in whom I have full confidence, and the few untried ones are such as are generally recommended as edible by European works on this subject, and such as I would have no hesitation in eating if opportunity should be afforded. A few of the species are such as are not represented in European works or have not been classed as edible in them, but in all these cases they have been proved by actual trial to be worthy of a place among our edible species.

There yet remains in our flora a goodly number of reputed edible species which I have not tried for lack of opportunity, but it is my purpose to test them as fast as opportunity is given. Eight species not included in the illustrations have been tried the past season. It is my purpose to continue the illustration of these, and others as fast as they have been proved, until all our esculent species have been thus represented. The more I experiment in this direction the more firmly I am convinced that the number of really poisonous or dangerous species of mushrooms is very small. Probably there is not a greater percentage of such species among the fleshy fungi than there is of really dangerous or poisonous species among flowering plants. But there are many fungi which, though harmless, are not to be classed as edible, because of their toughness, insipidity, unpleasant flavor or smallness of size.

The plan of putting the illustrations of our edible mushrooms upon charts to be suspended upon the walls of our institutions of learning seems to me to be a good one. In this way the students, by seeing them from day to day, would become familiar with the general appearance of the species, and would recognize them at once if they should see the plants themselves growing in their native places. There would probably be kindled in the minds of some, at least, an earnest desire to know more of these interesting and useful plants, and they would thus be led to acquire a more extended knowledge of them. If the number of our esculent species should be thought too great for such chart representation, any desired number of the more common and important species might be selected for this purpose. If the outlay necessary to place charts in all the district schools should seem too great, they might be placed at first in the high schools and academies by way of experiment.

The vegetation that grows so profusely in the shallow water at the head of Lake Champlain and along its shores and dykes seemed to me to be worthy of examination. This was given early in July. Much of the woody growth consists of willows, of which the most abundant are the black willow, *Salix nigra*, the shining willow, *S. lucida*, the glaucous willow, *S. discolor*, the heart-leaved willow, *S. cordata*, and the brittle willow, *S. fragilis.* All except the last are indigenous species. The green ash, *Fraxinus viridis*, the silver maple, *Acer dasycarpum* and the red maple *A. rubrum*, are also plentiful. Although these are moisture-loving plants, too much water seems to be an injury rather than a benefit to some of them at least. Their roots and the soil in which they grow are submerged much of the time, yet the leaves of many of them are unusually small. This was especially noticeable in the black willow, the shining willow and the heart-leaved willow. Their peculiar habitat seems also to retard development. The reddish-brown color of the young leaves of the heart-leaved willow and the maples was conspicuous even in July. The spiked loosestrife, *Lythrum Salicaria*, an introduced plant which is abundant in the lower part of the Hudson river valley, was growing freely in the margin of the lake. This is a new station for it and the most northern one in the State, though it is said to grow about the quarantine grounds of Quebec. The great bullrush, *Scirpus validus*, the river club-rush, *Scirpus fluviatilis*, and the sweet flag, *Acorus Calamus*, occupy much of the shallow water space, sometimes growing intermingled and again each maintaining exclusive possession over large areas. Such plants as the water persicaria, *Polygonum amphibium*, in which the leaves were often two inches wide and four or five inches long, and the swamp dock, *Rumex verticillatus*, were apparently intent on obtaining as much food as possible from their watery habitat, for they had emitted a dense whorl of rootlets from each of the lower joints of the submerged stem.

Our native wild roses and wild asters have been the source of considerable perplexity to botanists by reason of the variability of the species. Some special attention has been given to these plants the past summer and autumn. Our native roses are easily divided into two groups, one of which is easily recognized by the naked pedicels and receptacles and by the persistent lobes of the calyx; the other, by the glandular pedicles and receptacles and the deciduous lobes of the calyx. The bland or early wild rose, *Rosa blanda*, has hitherto been considered our only representative of the first group, but two roses have been found on the mountains and along the highways in the eastern part of Essex county which correspond to the description of the two western roses, *R. Engelmanni* and *R. Sayi*, which also belong to this group. These have the stems, and usually the branches also, densely clothed with prickles intermingled with some straight slender spines, a feature by which they may at a glance be distinguished from ordinary forms of the bland rose. They scarcely differ from each other except in the form of the fruit which is globose in the specimens referred to Say's rose, and oblong elliptical or ovate in those referred to Engelmann's rose. The bland rose which usually has stems entirely destitute of prickles or spines, sometimes occurs with prickles toward the base of the stems, but I have seen no specimens with spines.

The Carolinian or swamp rose, *Rosa Carolina*, so far as my observation goes, is most satisfactorily recognized by the teeth on the margin of the leaflets. These are decidedly smaller and finer than those of the leaflets of the other species of its group. The stem is sometimes furnished with prickles, sometimes destitute of them. This is the only species of wild rose that I have found in the heart of the Adirondack wilderness. It flowers there about one month later than on Long Island. Of the two remaining species of this group, the shining rose, *Rosa lucida*, and the dwarf rose, *R. humilis*, the extreme forms are easily recognized; the former by its tall stout stem, stout spines and dark-green shining leaves; the latter, by its low slender growth, straight, slender spines, thinner leaves and fewer flowers; but all manner of intermediate forms occur which are very perplexing and which seem to connect the two.

Among our wild asters several interesting forms and varieties have been collected. Some of the most notable of these variations have been found to occur in the prenanthoid aster, *Aster prenanthoides*, a species which seems to have been regarded as quite uniform and fixed in its characters, for only a single variety is mentioned in the North American Flora. In the Catskill mountain region it varies excessively in the size and shape of the leaves, in the number and size of the heads and in their arrangement in panicles and corymbs, in the color of the rays and in the number, length and direction of the branches. The extreme forms, if observed separately, would scarcely be thought to belong to the same species, but they are so connected by intermediate forms that it is difficult to separate them. A more extended account of these variations will be found in another part of this Report.

Scarcely less remarkable are the variations shown by the low or dwarf goldenrod, *Solidago humilis.* This species, which I have found in the Adirondack region only, occurs on the top of the low rocky ridge on the north shore of Third lake, one of the Fulton chain of lakes. This ridge is known as Bald mountain Its summit is long and narrow and nearly destitute of trees. Here and there the rock is covered with limited areas of thin soil that has accumulated in the depressions and shallow cavities and crevices. In this the dwarf goldenrod grows. The elevation, temperature, degree of exposure, moisture and character of the soil are all so uniform over the whole summit that much variation in the character of any plant that might grow there would scarcely be expected. Yet this goldenrod, in this limited area and apparently exposed to the same external conditions, exhibits here four well-marked and quite distinct forms. It certainly looks as if variation does not always depend upon external circumstances.

Some attention has been given to the collection of specimens designed to add to the popular interest in the contemplated exhibit of representative specimens of the Herbarium at the World's Fair. But no official notice of the assignment of space for such an exhibit has yet been received by me, and I have not thought it proper to devote much time to preparation for this exhibit till such notice shall have been received. Inasmuch as the Herbarium is especially rich in specimens of fungi, I have thought it most appropriate to make an exhibit of these plants, and chiefly of those having an economical importance, either by reason of their useful or their noxious character.

Respectfully submitted.

CHAS. H. PECK.

ALBANY, *December* 12, 1892.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Papaver somniferum *L.*
Prunus Cerasus *L.*
P. domestica *L.*
Rosa humilis *Marsh.*
R. Sayi *Schw.*
R. Engelmanni *Wats.*
Rubus setosus *Bigel.*
R. Millspaughii *Britton.*
Galium Kamtschaticum *Stell.*
Œnothera Oakesiana *Robbins.*
Chrysanthemum segetum *L.*
Artemisia serrata *Nutt.*
Lactuca hirsuta *Muhl.*
Blephilia ciliata *Raf.*
Polygonum cuspidatum *S. & Z.*
Quercus Brittoni *Davis.*
Scirpus Peckii *Britton.*
Panicum nitidum *Mx.*
P. laxiflorum *Lam.*
Zygodon conoideus *Dicks.*
Tricholoma serratifolium *Pk.*
T. submaculatum *Pk.*
Clitocybe albidula *Pk.*
C. revoluta *Pk.*
Collybia ochroleuca *Pk.*
Mycena rugosa *Fr.*
M. hemisphærica *Pk.*
Entoloma nidorosum *Fr.*
Tubaria canescens *Pk.*
Agaricus subrufescens *Pk.*
Hypholoma aggregatum *Pk.*
Deconica bryophila *Pk.*
D. bulbosa *Pk.*
Coprinus arenatus *Pk.*
Hygrophorus metapodius *Fr.*
Russula adusta *Fr.*
Merulius Corium *Fr.*
M. serpens *Tode.*
Odontia lateritia *B. & C.*
Thelephora subochracea *Pk.*
Corticium Kalmiæ *Pk.*
Exobasidium Vaccinii *Wor.*
Tylostoma mammosum *Fr.*
T. campestre *Morg.*
Lycoperdon hirtum *Mart.*
L. asterospermum *D. & M.*
L. perlatum *Pers.*
L. Curtisii *Berk.*
Didymium proximum *B. & C.*
Physarum contextum *Rost.*
Peronospora Linariæ *Fckl.*
Phyllosticta Dioscoreæ *Cke.*
Phoma vulgaris *Sacc.*
Macrophoma versabilis *Pk.*
Sphæronema Loniceræ *Pk.*
Septoria Trailiana *Sacc.*
Micropera Nemopanthis *Pk.*
Glœosporium Platani *Oud.*
G. phomoides *Sacc.*
G. fructigenum *Berk.*
Cylindrosporium Acori *Pk.*
Urocystis Waldsteiniæ *Pk.*
Cryptospora Gœppertiana *Kuhn.*
Æcidium Lupini *Pk.*
Uredo Chimaphilæ *Pk.*
Cylindrium griseum *Bon.*
C. elongatum *Bon.*
Verticillium sphærophilum *Pk.*
Periconia tenuissima *Pk.*
Zygodesmus fulvus *Sacc.*
Cladosporium Zeæ *Pk.*
Napicladium gramineum *Pk.*
Stilbum madidum *Pk.*
Coremium glaucum *Fr.*
Fusarium viticolum *Thum.*
Lachnella citrina *Pk.*
Anthostoma Ontariense *E. & E.*
Stigmatea Geranii *Fr.*
Massariella Xanthoxyli *Pk.*
Ophiobolus subolivaceus *Pk.*

Not new to the Herbarium.

Anemone Virginiana *L.*
A. nemorosa *L.*
Thalictrum polygamum *Muhl*
Magnolia glauca *L.*
M. acuminata *L.*
Nuphar advena *Ait.*

Nuphar Kalmianum *Ait.*
Arabis hirsuta *Scop.*
A. perfoliata *Lam.*
Nasturtium palustre *DC.*
Barbarea vulgaris *R. Br.*
Lepidium intermedium *Gr.*
Hudsonia ericoides *L.*
Viola sagittata *Ait.*
Arenaria serpyllifolia *L.*
A. Caroliniana *Walt.*
Buda rubra *Dumont.*
Hypericum Ascyron *L.*
Linum striatum *Walt.*
L. Virginianum *L.*
Erodium cicutarium *L'Her.*
Geranium Carolinianum *L.*
Flœrkea proserpinacoides *Willd.*
Vitis æstivalis *Mx.*
Polygala polygama *Walt.*
P. senega *L.*
P. sanguinea *L.*
Lespedeza violacea *Pers.*
Vicia sativa *L.*
V. tetrasperma *L.*
V. Cracca *L.*
V. Caroliniana *Walt.*
Cassia Marilandica *L.*
Prunus maritima *Wang.*
P. Persica *B. & H.*
Rubus neglectus *Pk.*
R. villosus *Ait.*
R. Canadensis *L.*
Rosa blanda *Ait.*
R. lucida *Ehrh.*
Amelanchier Canadensis *T. & G.*
Sedum acre *L.*
Drosera filiformis *Raf.*
Myriophyllum ambiguum *Nutt.*
Lythrum Salicaria *L.*
Epilobium lineare *Muhl.*
E. adenocaulon *Haussk.*
Œnothera fruticosa *L.*
Opuntia vulgaris *Mill.*
Aralia trifolia *D. & P.*
Viburnum cassinoides *L.*
Cornus florida *L.*
Galium pilosum *Ait.*
G. circæzans *Mx.*
G. boreale *L.*
G. trifidum *L.*
Galium triflorum *Mx.*
Solidago bicolor *L.*
S. humilis *Pursh.*
S. uliginosa *Nutt.*
S. rugosa *Mill.*
S. juncea *Ait.*
S. Canadensis *L.*
S. nemoralis *Ait.*
S. lanceolata *L.*
Sericocarpus conyzoides *Nees.*
S. solidagineus *Nees.*
Aster Herveyi *Gr.*
A. corymbosus *Ait.*
A. patens *Ait.*
A. undulatus *L.*
A. cordifolius *L.*
A. lævis *L.*
A. diffusus *Ait.*
A. paniculatus *Lam.*
A. prenanthoides *Muhl.*
A. puniceus *L.*
Erigeron annuus *Pers.*
E. strigosus *Muhl.*
Gnaphalium purpureum *L.*
Artemisia caudata *Mx.*
Senecio aureus *L.*
Cnicus horridulus *Pursh.*
C. pumilus *Torr.*
Hieracium præaltum *Vill.*
H. venosum *L.*
Sonchus asper *Vill.*
Lobelia spicata *Lam.*
Specularia perfoliata *A. DC.*
Campanula rapunculoides *L.*
Rhododendron viscosum *Torr.*
Chimaphila maculata *Pursh.*
Primula Mistassinica *Mx.*
Lysimachia stricta *Ait.*
Anagallis arvensis *L.*
Fraxinus viridis *Mx.*
Asclepias incarnata *L.*
A. verticillata *L.*
Hydrophyllum Canadense *L.*
Verbascum Thapsus *L.*
Linaria vulgaris *Mill.*
Mimulus moschatus *Dougl.*
Limosella aquatica *L.*
Veronica peregrina *L.*
Conopholis Americana *Wallr.*
Lycopus Virginicus *L.*

Scutellaria lateriflora *L.*
S. galericulata *L.*
Plantago major *L.*
P. Rugelii *Dec.*
P. lanceolata *L.*
P. Patagonica *Jacq.*
Chenopodium capitatum *Wats.*
C. Bonus-Henricus *L.*
Rumex Patientia *L.*
R. verticillatus *L.*
R. obtusifolius *L.*
R. Acetosella *L.*
Polygonum lapathifolium *L.*
P. Pennsylvanicum *L.*
P. amphibium *L.*
P. Persicaria *L.*
P. acre *H B K.*
P. cilinode *Mx.*
Euphorbia Presslii *Guss.*
Carya sulcata *Nutt.*
Salix nigra *Marsh.*
S. lucida *Muhl.*
S. fragilis *L.*
S. rostrata *Rich.*
S. petiolaris *Sm.*
S. cordata *Muhl.*
S. myrtilloides *L.*
Chamæcyparis sphæroidea *Spach.*
Aplectrum hiemale *Nutt.*
Spiranthes cernua *Rich.*
S. Romanzoffiana *Cham.*
Pogonia pendula *Lindl.*
Habenaria lacera *R. Br.*
Aletris farinosa *L.*
Iris prismatica *Pursh.*
Sisyrinchium anceps *Cav.*
Clintonia borealis *Raf.*
Lilium Philadelphicum *L.*
Trillium erectum *L.*
Heteranthera graminea *Vahl.*
Juncus marginatus *Rostk.*
J. Greenii *O. &. T.*
J. tenuis *Willd.*
J. Gerardi *Loisel.*
J. pelocarpus *E. Meyer.*
J. articulatus *L.*
J. militaris *Bigel.*
J. acuminatus *Mx.*
J. scirpoides *Lam.*
Cyperus strigosus *L.*
Scirpus maritimus *L.*
S. fluviatilis *Gr.*
S. polyphyllus *Vahl.*
S. silvaticus *L.*
Eriophorum cyperinum *L.*
Scleria pauciflora *Muhl.*
Carex intumescens *Rudge.*
C. lurida *Wahl.*
C. hystricina *Muhl.*
C. scabrata *Schw.*
C. vestita *Willd.*
C. filiformis *L.*
C. lanuginosa *Mx.*
C. stricta *Lam.*
C. torta *Boott.*
C. longirostris *Torr.*
C. arctata *Boott.*
C. Sullivantii *Boott.*
C. granularis *Muhl.*
C. conoidea *Schk.*
C. Hitchcockiana *Dew.*
C. laxiflora *Lam.*
C. digitalis *Willd.*
C. laxiculmis *Schw.*
C. plantaginea *Lam.*
C. eburnea *Boott.*
C. varia *Muhl.*
C. Pennsylvanica *Lam.*
C. communis *Bailey.*
C. vulpinoidea *Mx.*
C. sparganioides *Muhl.*
C. Muhlenbergii *Schk.*
C. cephaloidea *Dew.*
C. cephalophora *Muhl.*
C. echinata *Murr.*
C. canescens *L.*
C. tribuloides *Wahl.*
C. scoparia *Schk.*
C. fœnea *Willd.*
C. silicea *Olney.*
C. straminea *Willd.*
Spartina juncea *Willd.*
S. cynosuroides *Willd.*
Panicum virgatum *L.*
P. dichotomum *L.*
P. Crus-galli *L.*
Setaria Italica *Kunth.*
Anthoxanthum odoratum *L.*
Oryzopsis asperifolia *Mx.*
Muhlenbergia Mexicana *Trin.*

Muhlenbergia silvatica *T. & G.*
M. Willdenovii *Trin.*
Calamagrostis Canadensis *Bv.*
Agrostis alba *L.*
A. scabra *Willd.*
Deschampsia flexuosa *Trin.*
Trisetum subspicatum *Bv.*
Avena striata *Mx.*
Eatonia Pennsylvanica *Gr.*
Eragrostis Frankii *Meyer.*
Poa serotina *Ehrh.*
P. trivialis *L.*
P. debilis *Torr.*
P. alsodes *Gr.*
Glyceria obtusa *Trin.*
G. nervata *Trin.*
G. grandis *Wats.*
G. fluitans *R. Br.*
G. acutiflora *Torr.*
Festuca elatior *L.*
Bromus Kalmii *Gr.*
Elymus Virginicus *L.*
E. Canadensis *L.*
Equisetum limosum *L.*
Asplenium Filix-fœmina *Bernh.*
Aspidium spinulosum *Sw.*
Lygodium palmatum *Sw.*
Botrychium ternatum *Sw.*
Amanita muscaria *L.*
Armillaria mellea *Vahl.*
Tricholoma terreum *Schaeff.*
Collybia radicata *Rehl.*
Pholiota discolor *Pk.*
Cortinarius pulchrifolius *Pk.*
Lactarius deceptivus *Pk.*
Polyporus cuticularis *Fr.*
Poria semitincta *Pk.*
Hydnum graveolens *Del.*
Porothelium fimbriatum *Fr.*
Thelephora Cladonia *Schw.*
Hymenochæte tabacina *Lev.*
H. corrugata *Lev.*
Corticium incarnatum *Lev.*
C. radiosum *Fr.*
C. subaurantiacum *Pk.*
Ceratium hydnoides *A. & S.*
Plasmopara viticola *B. & D.*
Monilia fructigena *Pers.*
Macrosporium commune *Rabh.*
Cladosporium herbarum *Lk.*
Cryptospora suffusa *Fr.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. E. G. Britton, New York, N. Y.

Zygodon conoideus *Dicks.*

Mrs. D. B. Fitch, Norwich, N. Y.

Lygodium palmatum *Sw.*

Miss Bessie Grinnan, Madison Mills, Va.

Calostoma Berkeleyi *Mass.*

Rev. J. H. Wibbe, Schenectady, N. Y.

Chrysanthemum segetum *L.*
Artemisia serrata *Nutt.*
Erodium Cicutarium *L'Her*
Mimulus moschatus *Dougl.*
Polygonum cuspidatum *S. & Z.*
Eragrostis Frankii *Meyer.*

Rev. J. L. Zabriskie, Flatbush, N. Y.

Myriophyllum ambiguum *Nutt.*, var. limosum *Torr.*
Limosella aquatica *L.*, var. tenuifolia *Hoffm.*

Geo. F. Atkinson, Auburn, Ala.

Hypocrella tuberiformis *B. & Br.*
Microsphæria calocladophora *Atk.*
Ravenelia Cassiæcola *Atk.*
Uredo Fici *Cast.*
Ramularia areola *Atk.*
Cercospora Bolleana *Speg.*

S. M. Tracy, Starkville, Miss.

Phyllosticta ulmicola *Sacc.*
Vermicularia affinis *S. & B.*
Dinemasporium graminum *Lev.*
Glœosporium nervisequum *Sacc.*
Ustilago Uniolæ *E. & E.*
Uromyces Dactylidis *Ott.*
Puccinia globosipes *Pk.*
P. rubigovera *Wint.*
P. emaculata *Schw.*
P. coronata *Cd.*
P. Conoclinii *Seym.*
P. Anthoxanthi *Fckl.*
Phragmidium speciosum *Fr.*
Ravenelia Cassiæcola *Atk.*
Æcidium Oldenlandianum *E. & T.*
Melampsora Quercus *Schw.*
M. Hydrangeæ *Burr.*
Helminthosporium Ravenelii *B. & C.*
Entyloma Physalidis *Wint.*
Cercospora grisea *C. & E.*
C. gossypina *Cke.*
C. cruenta *Sacc.*
C. macroguttata *Atk.*
C. erythrogena *Atk.*
Erysiphe communis *Fr.*
Microsphæria Alni *Wint.*
Sphærotheca lanestris *Hark.*
Pseudopeziza Medicaginis *Lib.*
Acrospermum compressum *Tode.*

E. C. Howe, Lansingburgh, N. Y.

Carex hystricina *Muhl.*
C. tribuloides *Wahl.*
C. lurida *Wahl.*
Muhlenbergia Mexicana *Trin.*
Agrostis perennans *Tuck.*
A. vulgaris *With.*
Glyceria fluitans *R. Br.*

G. H. Hicks, Agricultural College, Mich.

Excipula Hicksiana *E. & E.*
Morchella bispora *Sor.*
Dendryphium corticola *E. & E.*
Verpa digitaliformis *Pers.*

A. P. Morgan, Preston, Ohio.

Bovista minor *Morg.*
Bovistella Ohiensis *E. & M.*
Hymenochæte purpurea *C. & M.*

M. A. Howe, Berkeley, Cal.

Glœosporium Pteridis *Hark.*

S. H. Burnham, Vaughns, N. Y.

Hypericum pyramidatum *Ait.*
Cuphea viscosissima *Jacq.*
Cardamine pratensis *L.*
Blephilia ciliata *Raf.*
Blitum Bonus-Henricus *Reich.*
Houstonia purpurea *L.*
Aplectrum hiemale *Nutt.*

J. Dearness, London, Can.

Phyllosticta Dircæ *E. & D.*
P. staphylina *D.*
Ceriosporella Dearnessii *E. & E.*
Micropera Fraxini *E. & E.*
Botrytis epichloris *E. & D.*
Puccinia Pimpinellæ *Lk.*
Pezicula carpinea *Pers.*
Melampsori chionea *Fr.*
Anthostomella mammoides *E. & E.*
Melanconis salicina *E. & E.*
Clypeosphæria ulmicola *E. & E.*
Sphærella Epilobii *Sacc.*
Otthia Ostryigena *E. & E.*
Thyridium Americanum *E. & E.*
Cucurbitaria ulmicola *Fckl.*
Diaporthe aliena *E. & E.*
D. tuberculosa *Sacc.*
D. spicata *E. & E.*
D. claviceps *E. & E.*

W. T. Davis, New Brighton, N. Y.

Quercus Brittoni *Davis.*
Q. nigra *L.*
Populus heterophylla *L.*

N. L. Britton, New York, N. Y.

Galium Kamtschaticum *Stell.*
Ranunculus septentrionalis *L.*
Aquilegia vulgaris *L.*
Lepidium Virginicum *L.*
Viola delphinifolia *Le Conte.*
Acer spicatum *Lam.*
A. Pennsylvanicum *L.*

[*]

Geaster argenteus *Cke.*
Ustilago Hordei *K. & S.*
Uromyces Spragueæ *Hark.*
U. Zygadeni *Pk.*
U. Eriogoni *E. & H.*
U. Euphorbiæ *C. & P.*
U. borealis *Pk.*
U. Glycyrrhizæ *R. & M.*
Puccinia Polygoni *Pers.*
P. mirabillissima *Pk.*
P. consimilis *E. & E.*
P. Gayophyti *Pk.*
P. Phragmitis *Korn.*
P. Menthæ *Pers.*
P. Tanaceti *DC.*
P. intermixta *Pk.*
P. rubigovera *Wint.*
P. Grindeliæ *Pk.*
P. Troximontis *Pk.*
P. Balsamorrhizæ *Pk.*
P. Giliæ *Hark.*
P. Malvastri *Pk.*
P. mutabilis *E. & E.*
P. Hieracii *Mart.*
P. Helianthi *Schw.*
P. Jonesii *Pk.*
Phragmidium Potentillæ *Karst*
P. subcorticium *Wint.*
P. Rubi-Idæi *Karst.*
Melampsora Lini *Tul.*
M. farinosa *Schrœt.*
Melampsorella Cerastii *Schrœt.*
Cronartium asclepiadeum *Fr.*
Æcidium Clematidis *DC.*
Æ. Allenii *Clint.*
Æ. Violæ *Schum.*

Rubus Millspaughii *Britton.*
Vicia hirsuta *Koch.*
Zizia aurea *Koch.*
Osmorhiza longistylis *Torr.*
Erigeron bellidifolius *Muhl.*
Senecio aureus *L.*
Tussilago Farfara *L.*

Æcidium gaurinum *Pk.*
Æ. Convallariæ *Schum.*
Æ. porosum *Pk.*
Æ. Ellisii *T. & G.*
Æ. hemisphæricum *Pk.*
Æ. Thalictri *Grev.*
Æ. monoicum *Pk.*
Æ. Urticæ *Wint.*
Æ. Plantaginis *Ces.*
Æ. Eurotias *E. & E.*
Æ. Cleomis *E. & A.*
Æ. Compositarum *Mart.*
Æ. Pini *Pers.*
Uredo Polypodii *DC.*
Rœstelia cornuta *Fr.*
Cystopus candidus *Lev.*
C. cubicus *DeBy.*
Ramularia arnicalis *E. & E.*
Cercospora Thaliæ *E. & E.*
Peziza scabrovillosa *Phil.*
Mollisia Montanensis *E. & E.*
Lachnella flammea *A. & S.*
Claviceps purpurea *Tul.*
Tapesia fusca *Pers.*
Erysiphe communis *Fr.*
E. graminis *DC.*
E. Cichoracearum *DC.*
Sphærotheca Castagnei *Lev.*
Uncinula Salicis *Wint.*
Physalospora megastoma *Pk.*
P. aurantia *E. & G.*
Rosellinia obliquata *Sacc.*
Teichospora mammoides *E.& E.*
Phyllachora Heraclei *Fr.*
P. Potentillæ *Schw.*
P. Wittrockii *Sacc.*

C. L. Shear, Alcove, N. Y.

Carex intumescens *Rudge.*
C. sparganioides *Muhl.*
C. Sullivantii *Boott.*
Botrychium ternatum *Sw.*
Amanita cæsarea *Scop.*
Urocystis Waldsteiniæ *Pk.*

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[*] The following are specimens of fungi from the collection of the late F. W. Anderson. They were communicated by Prof. Britton.

Mrs. L. L. Goodrich, Syracuse, N. Y.

Flœrkea proserpinacoides *Willd.*

W. Herbst, Trexlertown, Pa.

Phallus Ravenelii *B. & C.*	Queletia mirabilis *Fr.*

W. Falconer, Glen Cove, N. Y.

Agaricus subrufescens *Pk.*

C. F. Millspaugh, Waverly, N. Y.

Cylindrocolla Dendroctoni *Pk.*

John E. Coventry.

A fasciated ear of corn, Zea Mays *L.*

E. H. Savage, Keeseville, N. Y.

Sand incrusted specimen of fungus, Polyporus fomentarius *Fr.*

Prof. James Hall, Albany, N. Y.

Four-headed flower of dandelion, Taraxacum officinale *Web.* on a single stout or fasciated scape.

(C.)

SPECIES NOT BEFORE REPORTED.

Papaver somniferum *L.*

Menands, Albany county. September. Cultivated for ornament but often self-seeding and sparingly escaping from cultivation.

Prunus Cerasus *L.*

Voorheesville and Delmar, Albany county, and Westport, Essex county. The sour cherry is sometimes spontaneous by roadsides and near farm-houses.

Prunus domestica *L.*

Amagansett, Suffolk county. An apparently starved or degenerate form of the cultivated plum grows in sandy soil in this locality. It assumes a straggling bush-like form three to four feet high, or in a few instances six to eight feet. The taller specimens were seen on the north side of the road leading from Amagansett to Easthampton. The leaves on the spurs are about six lines long and three lines broad. Those on the branches are about one inch long and half as wide. On the most thrifty shoots they scarcely exceed one and a half inch in length. Flowers and fruit not seen.

Rosa humilis *Marsh.*

This rose, which had been previously united with *R. lucida*, is considered a distinct species in the last edition of Gray's Manual. Its most prominent distinguishing features are its shorter stems, straight slender spines, narrow stipules and lobed outer sepals. These characters, however, are somewhat variable, so that individuals occur, which connect the two in such a way as to show that they are not very sharply limited. This is the most common species about Albany. It is abundant on Mount Defiance, near Ticonderoga, and is quite variable there. One noteworthy form has the spines nearly wanting, the leaflets numerous and small, generally eight or nine lines long, and the pedicels and calyx tube as glabrous as in *R. blanda*. From *R. blanda* it may be separated by the presence of an occasional spine and by the deciduous sepals. Can it be a cross between *R. blanda* and *R. humilis*, both of which occur in this locality? *R. humilis* appears to be equally at home on rocky, clayey or sandy soil. It is abundant in the eastern part of Long Island.

Rosa Sayi *Schw.*

I refer to this species, specimens collected near Westport, Essex county, in June. The essential characters of the species are shown, but in some cases only partially or slightly. The serrulate teeth of the leaflets are not always present, and their resinous-puberulent character is sometimes very slight. The stems are always very prickly, and often the branches also. The prickles are sometimes intermingled with straight, slender spines, and the stipules, which are either narrow or dilated, are pretty constantly and distinctly glandular-ciliate. The leaflets are more rounded or obtuse at the base than in *R. blanda*, from which it is separated by the characters just mentioned, although its variation from typical *R. Sayi* seems to be in the direction of *R. blanda*. In the Manual the species is credited from Northern Michigan and Wisconsin to Minnesota and Colorado. Possibly it may have been introduced into our locality from the west, but it is well established both north and west from Westport, and has been here many years.

Rosa Engelmanni *Watson.*

Fruiting specimens of a rose very similar to the preceding species were collected several years ago at the base of Mount

Defiance, near Ticonderoga. They differ from *Rosa Sayi* in the shape of the fruit, which is distinctly longer than broad.

Rubus Millspaughii *Britton.*

Avalanche Pass, Essex county. *N. L. Britton.* Morehouseville, Hamilton county. July.

The glabrous character of this species separates it from small forms of *Rubus villosus* var. *frondosus*. The specimen contributed by Professor Britton is wholly without spines, those collected by myself have a few weak spines.

Rubus setosus *Bigel.*

Common in the southern and western part of the Adirondack region. Morehouseville and Lake Pleasant, Hamilton county, Old Forge or "Brown Tract," Herkimer county, and Garoga, Fulton county. July and August.

This plant was previously reported by me as *Rubus hispidus* var. *suberectus*, but later observations led me to the belief that it is a distinct species. Professor Britton agrees with me in this belief, and thinks it belongs to the species under which I have now placed it, and with the originally published description of which it agrees very well, except that its ripe fruit is black instead of red, as in Bigelow's plant. Doctor Torrey, in N. Y. State Flora, regarded Bigelow's plant as a variety of *Rubus hispidus* and abbreviated the description too much to make it satisfactory. The specimen which he placed in the Herbarium as a representative of this plant is clearly a mere form of *R. hispidus*.

R. setosus, as here understood, is quite plentiful in the localities mentioned and evidently delights in the soil of mixed sand and gravel which is common in that region. I observed the past season that it had taken possession of the old neglected garden of Arnold house, Fulton Chain, and was apparently fast overrunning the whole area. It thrives better on dry upland than in wet swampy places, though it occasionally appears in such localities. The old abandoned fields and pastures of the region mentioned are most congenial to it. Unthrifty specimens of it were seen on the summit of Bald mountain near Third lake. In no case have I found it associated with *R. hispidus*, which is strangely absent or scarce in this whole region. The fruit is ripe in August. It is rather small, black when ripe and scarcely inferior in flavor to that of the dewberry, *R. Canadensis*, or of the leafy blackberry and of Millspaugh's blackberry.

Galium Kamtschaticum *Stell.*

Mount Marcy. August. *Britton.* The specimens are in fruit, but no flowers are shown. The species may be distinguished from the glabrous variety of *Galium circaezans* by its long erect pedicels.

Œnothera Oakesiana *Robbins.*

Luzerne, Warren county. This is *Œ. biennis* var. *Oakesiana* Gr.

Chrysanthemum segetum *L.*

Introduced and growing in fields near Niskayuna, Schenectady county. September. *Rev. J. H. Wibbe.*

Artemisia serrata *Nutt.*

Banks of the Mohawk, three miles below the aqueduct and opposite Rock island. August. *Wibbe.*

An introduction from the west.

Lactuca hirsuta *Muhl.*

Rocky hillsides. Whitehall. June.

Blephilia ciliata *Raf.*

Vaughn's, Washington county. *S. H. Burnham.*

Polygonum cuspidatum *S. & Z.*

Banks of the Mohawk below the aqueduct, Schenectady county. August. *Wibbe.* Introduced as an ornamental plant, but sometimes escaping from cultivation.

Quercus Brittoni *Davis.*

Watchogue, Richmond county. September. *W. T. Davis.* Mr. Davis considers this oak to be a hybrid between *Quercus nigra* and *Q. ilicifolia.*

Scirpus Peckii *Britton.*

Lake Pleasant, Hamilton County. August. First collected in this locality in 1875. It was again collected in 1891, but in a new station. It was reported last year under the name *Scirpus polyphyllus* var. *macrostachys.* Professor Britton has recently published it as a distinct species, and as such it is now reported. It certainly is quite distinct from our ordinary forms of *S. polyphyllus.* Specimens sometimes occur in which a cluster of spikelets is borne on a long pedicel issuing from the axil of the uppermost leaf.

Panicum nitidum *Mx.*

Sandy soil near Riverhead. July.

Panicum laxiflorum *Lam.*

With the preceding species. July.

Zygodon conoideus *Dicks.*

Base of a birch tree. Adirondack mountains. *Mrs. E. G. Britton.* The specimen is sterile.

Tricholoma serratifolium *n. sp.*

Pileus fleshy, firm, convex or nearly plane, often irregular, dry silky or flocculose-squamulose, white, often slightly tinged with brown or yellowish-brown in the center, flesh white or whitish, taste at first mild, then acrid; lamellæ broad, close, adnexed, serrate or eroded on the edge, white; stem short, stout, solid, white; spores broadly elliptical or subglobose, .0002 to .00024 in. long, .0002 broad.

Pileus 2 to 4 in. broad; stem about 1 in. long, 3 to 6 lines thick.

Woods. Shokan. September.

This is apparently related to such species as *T. psammopodum* and *T. impolitum*, but distinct from them in color and in the character of the lamellæ.

Tricholoma submaculatum *n. sp.*

Pileus convex or nearly plane, sometimes slightly depressed in the center; glabrous, brownish, sometimes tinged with ferruginous, becoming obscurely spotted with age, flesh white; lamellæ thin, close, white, becoming orange-red or saffron color where wounded or bruised; stem solid, silky-fibrillose, white, often decumbent or radicating at the base; spores minute, broadly elliptical or subglobose, .00016 to .0002 in. long, .00016 broad.

Pileus 1 to 2 in. broad; stem 1 to 3 in. long, 3 to 5 lines thick.

Borders of woods. Shokan. September.

The species may easily be recognized by the obscurely spotted pileus and by the peculiar color assumed by any part of the plant where cut or bruised. The spots indicate an affinity with the tribe Guttata, but inasmuch as the specimens were collected in a dry time, the pileus did not exhibit the moist character to be expected in members of that tribe.

Clitocybe albidula *n. sp.*

Pileus thin, at first convex, then umbilicate or centrally depressed, glabrous, hygrophanous, pale grayish-brown and finely striatulate on the margin when moist, whitish when dry; lamellæ close, adnate or slightly decurrent, dingy-white; stem short, glabrous or slightly pruinose, hollow, colored like the pileus; spores minute, elliptical, .00016 to .0002 in. long, .0001 to .00012 broad.

Pileus about 1 in. broad; stem 1 in. long, 1 to 1.5 lines thick.

Under pine trees. Delmar. September.

Related to *C. candicans*, from which it is distinguished by its more dingy color and by its decided farinaceous odor. The margin of the young pileus is whitened by a pruinosity or a minute white villosity.

Clitocybe revoluta *n. sp.*

Densely cæspitose; pileus convex or nearly plane, glabrous, whitish and slightly striatulate on the margin when moist, white when dry, the thin margin commonly and irregularly revolute; lamellæ thin, narrow, close, adnate or slightly decurrent; stem glabrous, solid when young, stuffed or somewhat hollow when old, whitish; spores subglobose, .00016 to .0002 in. long.

Pileus 1 to 3 in. broad; stem 2 to 3 in. long, 3 to 5 lines thick.

Woods. Alcove, Albany county. September.

This plant forms dense tufts of considerable extent and composed of many individuals. In these tufts the pileus is more or less irregular with the margin wavy and revolute. Occasionally a plant is seen growing apart from the general mass and then its pileus is apt to be regular and the margin horizontal.

Collybia ochroleuca *n. sp.*

Pileus thin, convex, then umbilicate or centrally depressed, glabrous, pale ochraceous, flesh white, taste farinaceous; lamellæ broad, subdistant, rounded behind or emarginate, whitish; stem firm, slender, glabrous, stuffed or hollow, colored like the pileus; spores elliptical, .00024 to .0003 in. long, .0002 broad.

Pileus 6 to 12 lines broad; stem about 1 in. long, 1 line thick.

Woods. Shokan. September. Related to *C. esculenta*, but distinct by its umbilicate or depressed pileus and its farinaceous odor and taste.

Mycena hemisphærica *n. sp.*

Pileus thin, firm, hemispherical, glabrous, hygrophanous, brownish and striatulate when moist, gray or grayish-brown when dry; lamellæ subdistant, arcuate, adnate, livid-white; stem glabrous, hollow, livid-white; spores broadly elliptical, .00016 to .0002 in. long, .00012 broad.

Pileus 5 to 8 lines broad; stem 1 to 1.5 in. long, 1 to 1.5 lines thick.

Mossy prostrate trunks of trees in woods. Fulton Chain. August.

The species belongs to the tribe Rigidipedes. It is distinguished from *M. galericulata* by its hemispherical hygrophanous pileus, the character and color of the lamellæ and by its smaller spores. It is gregarious or subcæspitose in its mode of growth.

Mycena rugosa *Fr.*

Woods. Shokan. September.

Entoloma nidorosum *Fr.*

Woods. Shokan. September.

Our specimens differ from the type in having the stem solid and the lamellæ adnate. For the present I designate them as Var. *solidipes.*

Tubaria canescens *n. sp.*

Pileus very thin, almost membranous, convex, grayish-white or canescent, coated with minute whitish fibrils or appressed tomentum; lamellæ distant, decurrent, cinnamon color; stem slender, whitish, fibrillose, with a white mycelium at the base; spores elliptical, .00024 in. long, .00016 broad, often containing a shining nucleus.

Pileus 2 to 3 lines broad; stem 6 to 8 lines long.

Damp naked soil in woods. Selkirk. July.

This is a very small species closely allied to *Tubaria autochthona*, from which it is separated by the shape and color of the pileus, the decidedly decurrent lamellæ and the fibrillose stem. As in that species, the spores are unusually pale. The dry pileus is distantly sulcate or striate.

Agaricus subrufescens *n. sp.*

Pileus rather thin and fragile, at first deeply hemispherical, then convex or broadly expanded, often wavy or irregular, silky-fibrillose or minutely and obscurely squamulose, varying in color from whitish or grayish to dull reddish-brown, flesh white, unchangeable; lamellæ close, free, at first white or yellowish-white, then pinkish, finally blackish-brown; stem minutely flocculose below the annulus, hollow, white, somewhat thickened or bulbous at the base; the annulus membranous, white, externally flocculose; the mycelium white, forming slender branching root-like strings; spores elliptical, brown, .00024 to .00028 in. long, .00016 to .0002 broad.

Pileus 2 to 4 in. broad; stem 2 to 6 in. long, 4 to 8 lines thick.

Leaf mold. Glen Cove. October. *W. Falconer.* Also cultivated.

In the form of the young pileus and in its color in the reddish tinted specimens, also in the white color of the young lamellæ, this species makes an approach to *A. campestris* var. *rufescens*, but unlike that variety the wounded flesh does not become red. From typical *A. campestris* it differs in many respects — in the thin flesh, the color of the young lamellæ, the character of the stem and its annulus and in its mycelium. It resembles more closely *A. placomyces* and *A. silvaticus*, but from the former it may be separated by the shape of the pileus and the more obscure character of its scales and by its annulus, from the latter, by the color of the pileus and the young lamellæ and also by the annulus, which is externally floccose-squamulose and also not distant as in that species.

Mr. Falconer says that under cultivation it is exceedingly productive, growing equally well in sunshine and in shade, but being fond of warmth. When grown in the dark the color of the pileus is darker than when grown in the light. The mushrooms appear in twenty-four to thirty days after the planting of the spawn, which is about two weeks earlier than in the case of the common mushroom. They have a decided flavor and are good eating. From this it will readily be seen that in productiveness, early appearance and ability to endure warm weather it is an improvement on the common mushroom.

Hypholma aggregatum *n. sp.*

Densely cæspitose; pileus thin, convex or subcampanulate, grayish-white, obscurely spotted with appressed brownish fibrils; lamellæ subdistant, rounded behind, nearly free, at first whitish, then brown or blackish-brown with a whitish edge; stem rather long, hollow, somewhat floccose or fibrillose, white; spores brown, elliptical, .0003 in. long, .00016 to .0002 broad.

Pileus about 1 in. broad; stem 2 to 3 in. long, 1.5 to 2 lines thick.

At the base of trees and stumps in woods. Alcove. Sept.

The cæspitose habit and obscurely spotted grayish-white pileus are marked features of this species. From *H. silvestre* the species may be distinguished by its smaller size, adnexed or nearly free lamellæ, which have no rosy tint, and by its very cæspitose mode of growth.

Deconica bryophila *n. sp.*

Pileus thin, membranous on the margin, subconical, becoming convex or nearly plane, glabrous, hygrophanous, chestnut color or dark brown and striatulate on the margin when moist, creamy-white, grayish-white or pale brown when dry and often distinctly striate on the margin; lamellæ broad, distant, adnate or slightly decurrent, plane or ventricose, at first pale-brown, then purplish-brown; stem slender, slightly silky-fibrillose when young, stuffed or hollow, pallid or brown; spores brown, elliptical, .0003 in. long, .0002 broad.

Pileus 3 to 6 lines broad; stem 8 to 12 lines long.

Sandy soil among mosses. Delmar and Karner. May.

From *D. bullacea*, this species differs in its not viscid pileus and in its distant lamellæ. The chestnut-colored specimens sometimes have the center of the pileus darker than the margin.

Deconica bulbosa *n. sp.*

Pileus submembranous, convex, becoming nearly plane, glabrous, slightly striate on the margin, whitish tinged with brown; lamellæ broad, distant, adnate, purplish-brown; stem slender, firm, hollow, bulbous, both it and the bulb densely grayish-fibrillose; spores purplish-brown, elliptical, .0003 in. long, .0002 broad.

Pileus 3 to 6 lines broad; stem 8 to 12 lines long, scarcely half a line thick.

Dead stems of herbs. Delmar. September.

This small species resembles the preceding one in size, but it differs in its place of growth, its paler color, its bulbous stem and in the grayish fibrils that clothe both stem and bulb.

Coprinus arenatus *n. sp.*

Pileus thin, at first broadly ovate or subhemispherical, soon convex or campanulate, adorned with small white tomentose scales, striate on the margin, whitish or grayish-white, becoming grayish-brown with age; lamellæ broad, crowded, free, grayish-white, soon purplish-brown, finally black, furnished with numerous projecting hyaline cystidia; stem short, equal, glabrous, hollow, white; spores broadly ovate or subglobose, black in the mass, purplish-brown by transmitted light, .0003 to .00035 in. long, .00025 to .0003 broad.

Pileus 1 to 2 in. broad; stem 1 to 2 in. long, 1 to 2 lines thick.

Solitary or gregarious, growing on sandy soil recently overrun by fire. Karner. May.

The mycelium binds the sand together in a globular mass at the base of the stem. The scales of the pileus are easily separable and soon disappear. The marginal striations extend half way or more toward the center. The long cystidia give a peculiar appearance to the lamellæ, and in the fresh plant they may be seen extending across the interspaces. The species belongs to the section Tomentosi and is remarkable for its peculiar habitat.

Hygrophorus metapodius *Fr.*

Woods. Shokan. September. Our specimens were not at all viscid, nor did wounds of the flesh and lamellæ turn red, but in other respects they correspond so well to the figure and description of this species that we dare not separate them.

Russula adusta *Fr.*

Sandy soil in pine woods. Delmar. September.

Closely allied to *R. nigricans*, but differing in its thinner, closer and more decurrent lamellæ, which do not assume a reddish color where wounded. The specimens are commonly smaller than either *R. nigricans* or *R. sordida*, and they are less disposed to turn black in drying.

Merulius Corium *Fr.*

Decorticated wood of deciduous trees. Boiceville, Ulster county. September.

In our specimens the plants are wholly resupinate, slightly reflexed, or they have a well developed pileus. In this case the pileus is villous, concentrically sulcate and white. The hymenium also is somewhat concentrically sulcate. European authors do not agree in their descriptions of the size and shape of the spores of this species. In our specimens they are oblong or lanceolate, .0003 in. long, .00012 broad.

Merulius serpens *Tode.*

Decaying wood and branches. Lake Pleasant. August.

Odontia lateritia *B. & C.*

Interior of prostrate much-decayed trunks of deciduous trees, apparently birch, chestnut and oak. Fulton Chain. August. Shokan. September.

Under their description of this species, Berkeley and Curtis remark that *Phlebia hydnoidea* Schweinitz is apparently the same thing. So far as our specimens are concerned Schweinitz's description is far more complete and satisfactory than that of Berkely and Curtis, although the fungus is more closely allied to Odontia than to Phlebia. It forms extensive patches, creeping over the surface and following the inequalities of the wood. Although the substance is quite thick it is not separable from the matrix.

The color of the fresh plant is a beautiful orange, but it fades in drying so that it may not inaptly be called brick red. The hymenial warts or protuberances are sometimes arranged in lines or series. In drying, the surface becomes more or less chinky so that the protuberances appear to be collected in fascicles.

Thelephora subochracea *n. sp.*

Resupinate, incrusting, running over fallen leaves and twigs and forming suborbicular patches one to three inches broad, thin, tough, dry, pale-ochraceous, sometimes with a slight whitish byssine border.

Woods. Shokan. September.

The specimens have the appearance of some species of Corticium but the dry tough texture indicates a closer relation to Thelephora. They are scarcely in perfect condition.

Corticium Kalmiæ *n. sp.*

Effused, thin, tender, inseparable from the matrix; subiculum and indeterminate margin composed of slender whitish filaments; hymenium glabrous, continuous, yellowish-ochraceous; spores smooth, elliptical, .0004 to .0005 in. long, .00024 to .0003 broad.

Dead stems of mountain laurel, *Kalmia latifolia*.

Shokan. September.

This is apparently related to such species as *C. deglubens* and *C. secedens*, but differing from both of these in its inseparable character.

Exobasidium Vaccinii *Wor.*

Living leaves of bearberry, *Arctostaphylos Uva-ursi*. Riverhead. July.

Tylostoma mammosum *Fr.*

Sandy soil. Delmar. October. A rare species.

Tylostoma campestre *Morg.*

Sandy soil. West Albany. November.

Lycoperdon hirtum *Mart.*

Brewerton and Catskill mountains. This was formerly included by me with *L. atropurpureum*, from which it scarcely differs except in its depressed peridium and cord-like root.

Lycoperdon asterospermum *D. & M.*

North Greenbush and West Albany.

Lycoperdon perlatum *Pers.*

Brewerton, Adirondack and Catskill mountains. August and September. Following the illustrious Fries, I formerly included this with *L. gemmatum*, but it is so well marked by the prevailing form of the peridium and especially by the character of the spines of the cortex that it seems best to consider it a distinct species.

Lycoperdon Curtisii *Berk.*

Ground by roadside. Guilderland. October.

Didymium proximum *B & C.*

Fallen twigs and leaves of pine. Lake Pleasant. August.

Physarum contextum *Rost.*

Bark of trees. Fulton Chain. August.

Peronospora Linariæ *Fckl.*

Living stems and leaves of Canadian toadflax, *Linaria Canadensis*. Riverhead. July. This fungus is described as pure white, but in our specimens the patches have a dirty-white or grayish hue often with a slight violaceous tint. The long and narrowly obovate conidia are quite characteristic.

Phyllosticta Dioscoreæ *Cke.*

Living leaves of yam, *Dioscorea villosa*. Riverhead. July. Var. *grisea*. Spots gray with a narrow reddish-brown margin; perithecia epiphyllous, numerous, black; spores globose or ovoid.

Phoma vulgaris *Sacc.*

Dead stems of long fruited anemone, *Anemone cylindrica*. Delmar. June. The spores in our plant are slightly smaller than in the type.

Macrophoma versabilis *n. sp.*

Perithecia scattered, irregular, globose or compressed and hysteriiform, erumpent or subsuperficial, black; spores oblong-elliptical, colorless, .0005 to .0006 in. long, .00025 to .0003 broad; sporophores generally shorter than the spores.

Dead branches and galls of oak, *Quercus ilicifolia.* Karner. May.

Apparently intermediate in character between *M. dryina* and *M. nervisequa*, having spores like those of the former and perithecia somewhat resembling those of the latter.

Sphæronema Loniceræ *n. sp.*

Perithecia numerous, scattered uniformly, small, .009 to .012 in. broad, at first covered by the epidermis, then erumpent, narrowed above into a rostrum about as long as the diameter of the perithecium, black; spores numerous, elliptical or oblong, colorless, .00016 to .0003 in. long, .00008 to .00012 broad, oozing out in wet weather and forming a minute hyaline globule.

Living stems of hairy honeysuckle, *Lonicera hirsuta.* Brownville. June.

This is easily distinguished from *Sphærographium Loniceræ*, which has fusiform curved quadrinucleate spores.

Septoria Trailiana *Sacc.*

Living leaves of self-heal, *Brunella vulgaris.* Menands. August.

Micropera Nemopanthis *n. sp.*

Perithecia densely and prominently cæspitose, minute, black, opening on the application of moisture and revealing the whitish, gelatinous contents; spores subfiliform, curved or sigmoid, tapering toward each end, .0016 to .0024 in. long; sporophores short.

Dead branches of mountain holly, *Nemopanthes Canadensis.* Karner. May.

Glœosporium Platani *Oud.*

Living or languishing leaves of sycamore, *Platanus occidentalis.* Shokan. September.

This is quite distinct from *G. nervisequum*, both in habit and in the size and color of the acervuli.

Glœosporium phomoides *Sacc.*

Fruit of tomato. Menands. September.

Glœosporium fructigenum *Berk.*

On grapes. Menands. September and October.

This is destructive to the fruit, causing it to decay.

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Cylindrosporium Acori *n. sp.*

Spots numerous, subelliptical, sometimes confluent, blackish, nuclei minute; spores amphigenous, forming minute tufts, white, oblong or subcylindrical, sometimes narrowed toward one end, .0004 to .0008 in. long, about .00016 broad.

Living or languishing leaves of sweet flag, *Acorus Calamus.* Sandlake. September.

The spots, in size and shape, resemble those of *Uromyces pyriformis.* They are sometimes slightly whitened in the center by the confluence of the tufts of spores.

Urocystis Waldsteiniæ *n. sp.*

Sori large, oblong, following the nerves of the leaf, commonly near the margin and nearly parallel to each other, surrounded by the ruptured epidermis, black; spores not easily separable, three to six or more in a glomerule, the central and peripheral similar, subglobose or elliptical, often angular, .0005 to .0006 inch long, .0004 to .0005 broad, the glomerules very unequal in size and in the number of component spores.

Living leaves of barren strawberry, *Waldsteinia fragarioides.* Alcove. June. *C. L. Shear.*

This species is apparently closely allied to *U. Filipendulæ.* It seems to connect Urocystis with Thecaphora and to be ambiguous between these two genera. When there are but three spores in a glomerule the central one is usually larger than the others.

Specimens of this fungus have also been received from Professor Dearness, of London, Canada.

Cryptospora Gœppertiana *Kuhn.*

Living stems and branches of Canadian blueberry, *Vaccinium Canadense.* Fulton Chain. August. Also on the same host and on swamp blueberry, *Vaccinium corymbosum.* Sandlake. September.

This fungus is destructive to its host. The affected branches appear to live but one year. Their leaves are dwarfed in size or wholly obliterated, the branches themselves are generally unnaturally multiplied, and appear to form tufts or clusters, and they are unusually thick or swollen and their tissues greatly changed. Sometimes they are much twisted, curved or contorted, but more often they are straight and erect. In color they are often reddish-brown or chestnut. I have never seen any fruit on an affected branch.

Æcidium Lupini *n. sp.*

Spots numerous, small, orbicular, at first yellowish-green, becoming purplish-brown with age; spermogones epiphyllous, central; peridia hypophyllous, crowded, short; spores globose, verruculose, orange-yellow, .001 to .0016 in. broad.

Living leaves of common lupine, *Lupinus perennis*. Karner. June.

Uredo Chimaphilæ *n. sp.*

Spots none; sori chiefly hypophyllous, scattered or crowded, a long time covered by the epidermis, yellow or pale-orange; spores narrowly ovate oblong or subelliptical, .001 to .0012 in. long, .0005 to .0007 broad.

Living leaves and flowers of spotted wintergreen, *Chimaphila maculata*. Amagansett. July.

The fungus seems to kill the leaves it attacks.

Cylindrium elongatum *Bon.*

Fallen leaves of chestnut. Shokan. September.

Cylindrium griseum *Bon.*

Fallen leaves of chestnut-oak, *Quercus Prinus*. Shokan. September. Much like the preceding species, but distinguished by its gray color.

Verticillium sphærophilum *n. sp.*

Hyphæ minutely and stellately tufted, white, sparingly branched; branches one to three at a node, rather long, gradually tapering upward; spores elliptical, .0003 in. long, .00015 broad.

On *Hypoxylon coccineum*. Shokan. September.

The Verticillium appears to develop from the ostiola of its host.

Periconia tenuissima *n. sp.*

Effused, forming a thin indefinite purplish-brown downy stratum on the matrix; fertile hyphæ erect, slender, simple, scarcely septate, .011 to .014 in. long, .00015 thick; spores aggregated into a minute head, globose, .0001 to .00012 in. broad, colored like but paler than the hyphæ.

On a thick stratum of mycelium of some wood inhabiting fungus. Adirondack mountains. July.

Zygodesmus fulvus *Sacc.*

Decaying bark of maple, *Acer saccharinum.* Lake Pleasant August.

Cladosporium Zeæ *n. sp.*

Mycelial filaments colorless, branched, creeping among the tissues of the matrix and causing the epidermis to rupture; fertile hyphæ slender, sparingly septate, more or less elongate; densely interwoven and forming a grayish-green velvety stratum; spores very variable, globose elliptical or oblong, .00016 to .0008 in. long, continuous or at length with one to three septa.

Unripened grains of Indian corn, *Zea Mays.* Menands. September.

The species of Cladosporium are generally saprophytes, but this one appears to attack the living tissues of the grain. The kernel ruptures at the apex, revealing its white starchy contents, which are soon overspread by a grayish-green or olivaceous velvety coating of filaments which give a moldy appearance to the exposed surface. The rupture widens and the contents gradually disappear till the grain is deeply excavated. The fungus is a peculiar and apparently an injurious one.

Napicladium gramineum *n. sp.*

Spots brown, soon elongated and confluent, often occupying the whole leaf; tufts minute, punctiform, black, the hyphæ short, crowded, somewhat nodulose above; spores clavate, having one to three septa, .0012 to .0024 in. long, .0004 to .0005 broad.

Living leaves of rough meadow grass, *Poa trivialis.* Delmar. June.

This fungus is evidently a harmful one. It kills the leaves attacked by it. It differs from *N. arundinaceum* in its punctiform habit and narrower spores.

Stilbum madidum *n. sp.*

Stems numerous, sometimes cæspitose, .02 to .03 in. long, white or whitish, glabrous; head minute, subglobose, pellucid-white; spores oblong, often slightly narrowed toward one end, .0005 to .0006 in. long, about .00016 broad.

Sap-moistened cut surface of a birch stump, *Betula lutea*. Lake Pleasant. August.

The mycelium permeates a gelatinous stratum which overspreads the wood. The species is distinguished from *S. macrocarpum* by its white capitulum and more narrow spores.

Coremium glaucum *Fr.*

Fallen acorns. Shokan. September.

This is considered by some to be a mere form of *Penicillium glaucum*, from which it differs in having a stem composed of compacted filaments.

Fusarium viticolum *Thum.*

Grapes. Menands. September.

Our specimens differ from the type in the smaller superficial sporodochia and in the longer and more acutely pointed spores. They constitute a new variety if not a distinct species. For the present I call them var. *uvicolum*. Sporodochia minute, numerous, gregarious, superficial, depressed, flesh-colored; spores narrowly fusiform, generally curved, acute or acuminate, three to five septate, .0016 to .002 in. long.

Lachnella citrina *n. sp.*

Receptacle minute, .02 to .03 in. broad, sessile or with a very short stem, villose-tomentose, citrine-yellow, the hymenium yellow inclining to orange, generally concealed, when dry, by the connivent margin; asci subcylindrical, about .003 in. long; paraphyses filiform, equaling, or a little surpassing the asci; spores oblong or subfusiform, .0004 to .0005 in. long, .00016 broad.

Bark of chestnut trees. Shokan. September.

In some instances the marginal hairs of the cups are white.

Anthostoma Ontariensis *E. & E.*

Dead branches of willow, *Salix discolor.* Karner. May.

In our specimens the stroma is eutypoid rather than valsoid and the spores are a little broader than in the type.

Stigmatea Geranii *Fr.*

Living and languishing leaves of Carolinian cranesbill, *Geranium Carolinianum.* Brownville. June.

Massariella Xanthoxyli *n. sp.*

Perithecia small, .02 to 028 in. broad, immersed in the bark, scattered or subseriate, slightly elevating and at length piercing the epidermis; asci 8-spored; spores crowded or biseriate, at first colorless, then colored, uniseptate, quadrinucleate, oozing out and forming a conical mass, then distinctly uniseptate but not nucleate, .0024 to .0027 in. long, .0005 to .0007 broad.

Dead stems and branches of prickly ash, *Xanthoxylum Americanum.* Mechanicville. May.

In young specimens the bark has a much smoother and cleaner appearance than in old ones. In these it is roughened and stained by the heaps of ejected spores. The young spores have a strong resemblance to those of *Massaria vomitoria*, but the perithecia are much smaller than in that species and the uniseptate mature spores are quite distinct.

Ophiobolus subolivaceus *n. sp.*

Perithecia numerous, depressed, .012 to .014 in. broad, at first covered by the epidermis, then superficial, black; asci clavate or cylindrical; spores slightly curved, gradually narrowed toward each end, yellowish-brown by transmitted light, five-septate, .002 to .0025 in. long, .00016 broad, the third cell slightly swollen.

Dead stems of herbs, apparently of *Thalictrum polygamum.* Mechanicville. May.

This is closely allied to *O. olivaceus*, from which I have separated it because of its superficial perithecia and constantly five-septate spores.

(D.)

EXTRALIMITAL SPECIES.

The following species of fungi, which are considered new or worthy of mention, have been received from correspondents for identification. They were collected outside the limits of our State and are therefore noticed separately.

Phallus Ravenelii *B. & C.*

Var. *minor*. Plant small, 2 to 3.5 inches high, the part of the veil pendant from the top of the stem about equal to the pileus in length.

Trexlertown, Pennsylvania. *W. Herbst.*

Queletia mirabilis *Fr.*

Spent oak tan bark. Trexlertown, Pennsylvania. August. *Herbst.* So far as I know, this rare and interesting fungus has not before been detected in this country. It has the appearance of a large overgrown species of Tylostoma. The specimens vary from two to six inches long. The peridium or head is globose, and from one to two and a half inches in diameter. The stem is from four to eight lines thick, and externally is very ragged, shreddy and lacerated. It is easily separable from the head, to which it is attached in a kind of socket as in Tylostoma. The genus Queletia is especially distinguished from Tylostoma in having no apical aperture to the peridium. This, when mature, cracks open, either by a single long fissure or by several. The description of the single known species, as given in Sylloge, does not agree fully with our specimens, but these are manifestly the same specifically as a specimen collected in France and communicated to us by Doctor N. Patouillard, who labeled it *Queletia mirabilis* Fr. The dimensions of our specimens considerably exceed those assigned to the species, the spores are smaller and the color of the contents of the peridium is a dull tawny or brownish-ochraceous rather than flavescent or golden

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yellow, so that I should have considered them a distinct species, or at least a variety, but for their agreement with the specimen from France.

Phoma exocarpina *n. sp.*

Perithecia gregarious, subsuperficial, .014 in. broad, black; spores narrowly elliptical, hyaline, .0003 to .0004 in. long, .00016 broad.

Exocarp of old pignuts, *Carya porcina*. Michigan. May. *G. H. Hicks*.

Macrophoma Philodendri *n. sp.*

Perithecia scattered or gregarious, small, .007 to .014 in. broad, variable in form, thin, erumpent, black, opening by a wide mouth when moist and revealing the white mass of spores within; spores oblong or subcylindrical, colorless, sometimes binucleate, .0006 to .0008 in. long, .00016 to .0002 broad, supported on slender sporophores about equal to the spores in length.

Var. *maculicola*. Perithecia on definite white spots.

Living and dead leaves of *Philodendron pertusum*, growing in a conservatory. Michigan. May. *Hicks*.

Morchella bispora *Sor.*

Var. *truncata*. Pileus broadly rounded or truncate, its costæ slightly prominent, the margin often a little recurved; paraphyses numerous; stem long. Michigan. May. *Hicks*.

Geopyxis Hicksii *n. sp.*

Receptacle about 6 lines broad, infundibuliform, glabrous, brownish, the hymenium adorned with a few costæ radiating from the center; stem slender, from 8 to 12 lines long, scarcely 1 line thick, slightly enlarged above and expanding into the receptacle, brown; asci cylindrical, .0006 to .0008 in. long, .0005 broad; spores elliptical, even, .0005 to .0006 in. long, .0003 to .0004 broad.

Ground. Michigan. May. *Hicks*.

Remarkable for the straight radiating ridges of the hymenium, by which the species may easily be recognized.

Urnula Geaster *n. sp.*

Receptacle urceolate or cupulate, 1 to 2.5 inches broad, at length splitting into 4 to 6 rays, narrowed below into a stem-like base 3 to 5 lines thick, externally everywhere clothed with a dense velvety coat of slender, interwoven, minutely papillose brown hairs, flesh white; hymenium white or whitish, .035 in. thick; asci very long, cylindrical, .03 in. long; spores uniseriate, oblong or oblong-fusiform, pointed at each end, colorless, .0025 to .003 in. long, about .0006 broad, often containing a single large nucleus.

Ground. Austin, Texas. November. *L. M. Underwood.*

This species is well marked by its Geaster-like rays, its dense external velvety-tomentose covering, its thick hymenium and its very long spores. These surpass in length the spores of any other species of Urnula known to me.

Diatrypella Underwoodii *n. sp.*

Stroma small, .014 to .028 in. broad, prominent, subsuperficial, convex or subconical, uneven, black; perithecia few, 1 to 3 in a stroma, the ostiola obscure; asci fusiform or subclavate, long-pedicellate, the sporiferous part about .003 in. long, often swollen or irregularly tumid in the middle or at the base, the pedicel nearly as long as the sporiferous part; spores allantoid, .0003 in. long, .0001 broad.

Dead branches of mesquit. Austin, Texas. November. *Underwood.*

Distinguished for its very small verrucose stroma with few perithecia, and for its singularly swollen and irregular asci.

Rhytidhysterium Prosopidis *n. sp.*

Perithecia superficial, very hard when dry, subelliptical or trigonal, black, with very obtuse, thick, involute, crenulate or transversely sulcate-costate labiae, becoming expanded and softer when moistened, suborbicular, revealing the dingy yellowish-green distinctly margined disk; asci slender, cylindrical, .007 to .008 in. long, .00045 to .0005 broad, eight-spored; spores uniseriate, oblong, sometimes slightly curved, at first colorless and uniseptate, then colored and triseptate, .0008 to .0012 in.

long, .0003 to .0004 broad; paraphyses slightly surpassing the asci, several times forked or multifid at the apex.

Dead branches of mesquit, *Prosopis juliflora.* Austin, Texas. November. *Underwood.*

This species is apparently related to *R. Braziliense,* from which I have separated it because of its more slender asci and smaller spores.

Chætophoma setigera *n. sp.*

Perithecia minute, .003 to .005 in. broad, gregarious, epiphyllous and amphigenous, subglobose, black, seated on a thin effused superficial separable blackish stratum of interwoven filaments and adorned with a few slender erect or divergent black setæ .003 to .0045 in. long; spores numerous, minute, elliptical or oblong, colorless, .00016 to .00024 in. long, .00008 to .0001 broad, often with a minute nucleus at each end.

Living leaves of coast live oak, *Quercus agrifolia.* Berkeley, California. March. *M. B. Howe.*

Cylindrocolla Dendroctoni *Pk.*

(Flora of West Virginia, p. 516.)

Sporodochia minute, forming irregular masses, white or whitish, somewhat waxy; sporophores slender, abundantly branched above, often compacted below into a short stem-like base; spores catenulate, short cylindrical, subtruncate, colorless, .00016 to .0002 in. long, .00008 to .0001 broad.

Dead insects, *Dendroctonus frontalis,* and the inner bark of pine just about them. West Virginia. May. *C. F. Millspaugh.*

The insects are probably killed by the fungus as they lie dead in the furrows which they had excavated in the inner bark of pine trees, *Pinus inops.*

(E.)

NOTES AND OBSERVATIONS.

Anemone Virginiana *L.*

The variety with white obtuse petals was found near Whitehall.

Anemone nemorosa *L.* var. **quinquefolia.**

Common near Delmar, also at Karner. May.

Magnolia glauca *L.*

This small but beautiful tree has long been credited to Long Island, but I have been able to find it in only a single locality. In this place the trees are ten or twelve feet high and very slender, the trunk scarcely exceeding an inch or an inch and a half in diameter. The branches are short, which give the trees a rather strict appearance. The flowers are creamy-white and the fruit globular rather than "oblong." In the N. Y. State Flora its blossoming time is said to be May and June, but the past summer the trees were yet in blossom on the fifteenth of July. It is greatly to be hoped that the owners of the land where these trees grow will not allow them to be destroyed. There are not many of them, and it is possible they may be the only wild representatives of the species in our State.

Arabis perfoliata *Lam.*

This rare plant still exists on the rocky banks of the Black river below Watertown, where it was found more than fifty years ago.

Buda rubra *Dumont.*

Hempstead Plains. July. A small form three or four inches high.

Hypericum Ascyron *L.*

This plant which is not common in our State has been found in Washington county. *Burnham.*

Erodium Cicutarium *L' Her.*

Fields near Schenectady. July. *Wibbe.*

Flœrkea proserpinacoides *Willd.*

Near Syracuse. *Mrs. L. L. Goodrich.*

Vitis æstivalis *Mx.* var. bicolor *Le Conte.*

Whitehall. July.

Polygala polygama *Walt.*

West side of Mount Defiance on thin soil covering rocks. June. A form having pale-pinkish flowers was collected near Riverhead; also near Amagansett. July.

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Polygala sanguinea *L.*

Alcove. September. A late flowering form springing up in meadows and having the flowers wholly bright-purple. The common form on Long Island, which was in blossom in July, has the flowers greenish-purple.

Vicia sativa *L.* var. angustifolia *Ser.*

Adams. June.

Vicia tetrasperma *L.*

Bethlehem. June. This introduced species of vetch is evidently not limited to places near the sea coast as indicated in the Manual.

Vicia Cracca *L.*

Roadsides. Ticonderoga and Brownville. June.

Rosa blanda *Ait.*

Rocky banks of the Black river below Brownville. June. The absence of spines in this species together with its glabrous peduncles and calyx tubes and its persistent sepals, makes it one of the most easily recognizable of our native roses. The stems often have a few prickles toward the base but so far as I have seen they are always glabrous above. The rose found near Westport and which, in this Report I have referred to *R. Sayi*, seems to be intermediate between this species and typical *R. Sayi*. Its fruit is similar to that of *R. blanda*, but its stems and often its branches are very prickly, its stipules which are either narrow or dilated are distinctly glandular-ciliate and its leaflets are more rounded at the base and their serratures occasionally serrulate. The prickly stems usually have slender spines interspersed among the prickles. For these reasons it seems rather to be a variety of *R. Sayi* than of *R. blanda*.

Rosa Carolina *L.*

This is the only wild rose I have found in the heart of the Adirondack wilderness. It occurs along the inlets of Raquette lake and at Forked lake. It is in flower there in August. In one instance a tendency to the formation of double flowers was shown, the blossom having seven petals. The species occurs in all parts of the State. The fine serratures of the leaflets appear to be the most available character for distinguishing this species from its allies. The stems are sometimes very prickly, especially when young.

Rosa lucida *Ehrh.*

"Margins of swamps or moist places" is given in the Manual as the habitat of this species. On Long Island it is not uncommon to find unmistakable forms of it growing in dry places and associated with *R. humilis.* The stout spines, which are either straight or curved, seem to be the most available character by which to distinguish it from *R. humilis*, but it must be confessed that intermediate forms occur which are perplexing. I have not observed prickles on the stem of this species, but they are sometimes present in *R. humilis.*

Amelanchier Canadensis *T. & G.*

A form of variety *rotundifolia*, three to six feet high, occurs in sandy soil near Karner. Variety *oblongifolia* also grows there, but generally with the leaves rounded or broadly oval. A dwarf form also occurs, three or four feet high and having three to six flowers in a raceme. The petals are short and narrow.

Sedum acre *L.*

Very plentiful about Brownville, growing in thin soil covering rocks.

Myriophyllum ambiguum *Nutt.*

Fisher's island, Suffolk county. *Rev. J. L. Zabriskie.* The small variety *limosum.*

Lythrum Salicaria *L.*

Head of Lake Champlain. July.

Cuphea viscossissima *Jacq.*

Vaughn's, Washington county. *Burnham.* This is an extension of its range northward.

Opuntia vulgaris *Mill.*

Specimens of an Opuntia found growing in sandy soil near the mouth of Peconic river, with few or no spines, short leaves and fruit not over an inch long appear to be referable to this species, to which they are referred in the State Flora.

Galium pilosum *Ait.*

A small form six to nine inches high, with short internodes, leaves about half an inch long and flowers crowded in small dense clusters was collected on the north slope of Skylight mountain, one of the Adirondacks. It might be called variety *parvum.*

Galium circæzans *Mx.* var. **glabrum** *Britton.*

Leaves and stems nearly glabrous; corolla glabrous. Whitehall, New Scotland and Sandlake. July.

Solidago bicolor *L.*

A branching form, both of this and its variety *concolor*, is quite common. Each branch is terminated by a spike-like panicle of flowers.

Solidago humilis *Pursh.*

Top of Bald mountain, near Third lake, Herkimer county. Four distinct forms of this species occur in this limited station. First, a very leafy dwarf form, four to six inches high with a short dense panicle one to two inches long. Second, a very leafy form eight to twelve inches high, with an oblong leafy interrupted but dense panicle. The margins of the lower leaves are often wavy toward the base. These forms make a very close approach to the Western var. *nana.* Third, a still taller form in which the stem is less leafy, the leaves are smaller, more narrow and scattered, and the panicle is elongated, narrow and spike-like, but commonly interrupted either in its entire length or toward the base only. This is one to two feet high. The upper leaves are entire, the lower and radical ones more or less bluntly serrate. The stem is either green or purple and is glabrous below. This is the most abundant form. The fourth form is like this in all respects except that it has a broader, more branched panicle. The panicles in all the forms are so glutinous that they adhere to the drying papers when placed in press.

It is a little remarkable that this species should exhibit such a variety of forms in such a limited locality. All the forms appeared to be growing under the same conditions of soil, temperature, moisture and exposure. I suspect this is the plant which in Paine's Catalogue is referred to *Solidago speciosa* var. *angustata.* It is separable from that species by its glutinous panicle, more numerous rays and more narrow radical leaves. A large form of this species was collected on the gravelly bank at the outlet of the Lower Ausable pond. It is apparantly the same as that credited in the Manual to the "base of the White Mountains."

Solidago uliginosa *Nutt.*

In a "beaver meadow" about one mile southeast of the Forge House, Fulton Chain, a singular form of this species grows. The lower branches of the panicle are elongated and appressed, thus causing the panicle to take a pompon shape. In this locality the species was in blossom in August, and did not appear to be any earlier than *Solidago arguta*, *S. Canadensis*, *S. rugosa* and *S. lanceolata*, all of which were in flower there at the same time.

Solidago rugosa *Mill.*

A variety *pallida*, having both ray and disk flowers a pale creamy yellow color, occurs at Shokan, Ulster county.

Solidago nemoralis *Ait.* var. **elongata** *Pk.*

Abundant about Shokan.

Aster Herveyi *Gray.*

Borders of woods. Blue Mountain lake and Voorheesville. August and September.

In the Manual this is indicated as an "ambiguous species" approaching *A. macrophyllus*. It is indeed liable to be mistaken for that species, at least in some of its forms, if I rightly understand it. In the New York specimens the branchlets and peduncles are glandular-hairy and the involucral scales are glandular and the rays are violet as in *A. Herveyi*, though in some instances the color is pale violet. On the other hand, the leaves are not always lanceolate, but are sometimes ovate and distinctly serrate. They are also rough and rather thick as in *A. macrophyllus*. But this species, as described in the N. Y. State Flora, has a reddish-tawny pappus, while in our violet-rayed specimens the pappus is white or whitish, which is an additional reason for separating them from *A. macrophyllus* if this should prove to be a reliable character. It seems best, therefore, to consider them as a variety of *A. Herveyi*, and to

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indicate their character thus: *Aster Herveyi* Gr. var. *intermedia* Pk. Branchlets and peduncles glandular-hairy; heads large; rays violet; involucral scales glandular, erect, all or all except the longer and more pointed inner ones, green or with green tips; pappus white or whitish; leaves rather thick and rough, ovate or lanceolate, the lower on naked petioles and more or less cordate, the upper sessile, the radical leaves large, broadly ovate-cordate, rough, on long naked petioles.

Apparently intermediate between typical *A. Herveyi* and *A. macrophyllus*. With this it has probably been confused, but from it it may be separated by the larger heads, color of the rays and pappus and glandular peduncles.

Aster corymbosus *Ait.*

A pale, violet-rayed form with white pappus was obtained at Shokan. In general appearance it is quite like ordinary forms, but the color of the rays and of the pappus indicates a slight variation toward *A. Herveyi*.

Aster cordifolius *L.* var. lævigatus *Porter.*

This variety, well-marked and easily recognized, though not indicated in the Manual, extends northward to Shokan, in the Catskill mountains.

Aster lævis *L.*

West Albany. September. A form having rays nearly white. This is apparently the same or nearly the same as the white-rayed form found at Fort Edward by Dr. Vandenburg and mentioned in the Flora of North America. The color of the rays becomes a little more bluish-tinted in drying.

Aster diffusus *Ait.* var. variifolius *n. var.*

Heads scattered, mostly on bracted peduncles one-half to one inch long; branches horizontally spreading or slightly ascending; leaves sharply serrate with prominent teeth, varying from very long and narrowly lanceolate to oblong-ovate, acuminate, the broadest ones abruptly narrowed towards the base as if into a widely margined petiole.

Sandlake and Catskill mountains. September.

In the Manual this species is described as having the leaves lanceolate or oblong-lanceolate, the lower somewhat serrate in the middle. In our specimens all the leaves have very distinct serratures and they vary greatly in shape. Because of the scattered heads on long peduncles it seems to connect with *A. Tradescanti*, from which, as well as from *A. diffusus* var. *bifrons*, it differs in the character of its leaves.

Aster prenanthoides *Muhl.*

This species which, in the N. Y. Flora, is credited to the western part of the State only, is abundant and variable in the Catskill mountains. The heads are corymbose or paniculate, the rays are white, bluish-white, violet or blue and the leaves vary from the typical ovate acuminate form with its long abrupt and conspicuously contracted base to a narrowly lanceolate form in which the basal contraction is scarcely noticeable. They vary in length from two and a half to six or seven inches. They are generally distinctly serrate, but in a form which seems sufficiently well marked to merit designation as variety *diffusifolius*, the serratures are less prominent, the leaves are shorter, widest in the middle and less abruptly contracted, so that in shape they are strongly suggestive of those of the ordinary form of *A. diffusus*. The paniculate heads are about three lines high and the scales are less spreading than in the type.

This variety seems to run into *A. prenanthoides* on one hand and into *A. puniceus* on the other. Its agreement with the description of *A. puniceus* var. *lævicaulis* is very close, and I have not referred our specimens to this variety because of the character and arrangement of the hairs of the upper part of the stem and its branches and because of its apparently more close connection with *A. prenanthoides* in habitat size and appearance of the heads and shape of the leaves. The plants were associated in locality with both these species and may perhaps be a cross between them.

Senecio aureus *L.* var. **Balsamitæ** *T. & G.*

Rocky bank of Black river below Brownville. June.

Hieracium præaltum *Vill.*

This troublesome weed, recently introduced into the northern part of the State is rapidly spreading. It was found in three places near Adams, Jefferson county. It is evidently not particular as to soil or surroundings. It grows in sandy, clayey or gravelly soil, in places wet or dry, on naked ground or among grasses and exposed to the full rays of the sun or protected by the shade of trees. It already has a foothold in at least three counties

Vaccinium stamineum *L.*

The fruit of this species sometimes attains a diameter of five or six lines. Its flavor is similar to that of the cranberry for which it might be made a substitute.

Arctostaphylos Uva-ursi *Spreng.*

Abundant in sandy soil in the eastern part of Long Island.

Primula Mistassinica *Mx.*

This rare and local plant is still an inhabitant of the rocky cliffs along Fish creek above Taberg. Its flowers vary in color from white to pink or lilac.

Phlox divaricata *L.*

Near Sanford's Corners, Jefferson county. June.

Mimulus moschatus *Dougl.*

Near Middle Grove, Saratoga county. July. *Wibbe.*

Conopholis Americana *Wallr.*

Woods near Shokan.

Rumex verticillatus *L.*

Head of Lake Champlain growing in water two or three feet deep and emitting from the submerged joints of the stem numerous rootlets.

Polygonum amphibium *L.*

In the pond and river which form the outlet of the Fulton Chain of lakes, this species forms circular patches, which, from a little distance, might be taken for small islands. The plants are densely matted and in the central part of the patch they rise above the surface of the water and send up erect shoots, thus giving the aspect of an elevation in the center. Contrary to the Manual description, these plants have flower spikes from one to three inches long as in *P. Muhlenbergii*. Nor are these always terminal, for the stem is sometimes prolonged or branched near the top in such a way as to leave the flower spikes lateral or axillary. I label the specimens var. *longispicatum*.

Polygonum acre *H. B. K.*

Sea shore near Amagansett. July. This is a form in which the leaf has a dark colored central spot.

Polygonum cilinode *Mx.*

A small form, variety *erectum*, eight to twelve inches high, was discovered on the top of Bald mountain. Not finding anything on which to climb it assumes an erect mode of growth. It is either simple or sparsely branched. Its behavior is in marked contrast to that of the woodbine, *Cissus Ampelopsis*, another climbing plant, which, when growing in places where it finds nothing on which to climb, trails over the ground.

Aplectrum hiemale *Nutt.*

This rare plant occurs sparingly near Vaughn's, Washington county. *Burnham.*

Habenaria lacera *R. Br.*

Border of woods. Selkirk. July. This is a peculiar form worthy of designation as var. *elongata*. Flower spike eight to ten inches long, bracts narrow, linear-lanceolate, the lower ones much longer than the flowers, segments of the corolla, longer and more slender than usual, the middle segment of the lip linear, scarcely widened at the tip.

Aletris farinosa *L.*

Abundant on Hempstead Plains in open fields. July.

Juncus tenuis *Willd.* var. secundus *Engelm.*

Riverhead and Amagansett. July. Blue Mountain lake. August. The branches of the panicle are not always incurved, but the secund capsules give to the plant a very distinct appearance. Var. *congestus*, or its eastern analogue, was collected at Amagansett.

Juncus Greenii *O. & T.*

Riverhead, Amagansett and Hempstead Plains. July.

Juncus militaris *Bigel.*

Near Riverhead. July.

Scirpus polyphyllus *Vahl.*

Shandaken, Ulster county. Some of the plants emit leafy tufts or shoots among the rays after flowering.

Eriophorum cyperinum *L.*

Of var. *laxum* there is a form in which the spikelets are collected or crowded into a more or less dense somewhat gobular head. Blue Mountain slide. August. Sandlake. September. In the Sandlake specimens the spikelets are more tawny in color. It might be called form *condensatum.*

Scleria pauciflora *Muhl.*

Hempstead Plains. July.

Carex intumescens *Rudge.*

In the Manual this is said to have two fertile spikes. Specimens having three fertile spikes were collected at Blue Mountain lake: also in Alcove by Mr. Shear. They do not appear to be very unusual with us.

Carex lurida *Wahl.*

This species usually has but one staminate spike, but Dr. Howe finds, at Lansingburgh, specimens having two; a short one just below the base of the long one. In some instances the short one is pistillate at the apex. Variety *altior* was collected on Montauk Point. Dr. Howe also finds *Carex hystricina* with two staminate spikes. A small form of this species occurs near Adams. It has but one or two small and very short fertile spikes. In the latter case they are often very distant.

Carex torta *Boott.*

Three quite distinct forms of this species grow along Fish creek, near Taberg. In one the fertile spikes are long, loosely flowered at the base, and distant, and the lowest bract is long and leaf-like, much surpassing the spike and nearly equaling the culm in length. In the second the spikes are approximate with the bracts very slender and shorter than the spikes. In the third form the fertile spikes are shorter, about one inch long, more compactly flowered, approximate and erect or merely spreading. All are more or less staminate at the apex and the scale equals or exceeds the perigynium. The bracts are shorter than the spikes. This form approaches *Carex stricta* in appearance and is so well marked that I would call it var. *staminata.*

Carex Hitchcockiana *Dew.*

Slopes of Mt. Defiance. This is a few-flowered form having one to three perigynia in a spike, with the scales barely equaling, or shorter than the perigynia.

Carex Pennsylvanica *Lam.*

This is a very variable species, and some of the forms seem to be worthy of special designation, as forms if not varieties.

Form *bracteata.* Bract of the lowest spike green, elongated, generally exceeding its spike. Oak woods. Voorheesville.

Form *paleacea.* Scale large, ovate-lanceolate, longer than the perigynium. Sandy soil. Karner.

Variety *distans.* Fertile spikes four to eight lines apart. Sandy soil. Lerayville.

Variety *angustifolia.* Leaves very narrow, one-half to two-thirds of a line wide, mostly longer than the culm. Long Island. This appears to be a good variety. By its narrow leaves it approaches *Carex varia* Muhl., but the character of the spikes and of the perigynia require its reference to *C. Pennsylvanica.* Form *bracteata* makes an approach toward *C. communis.*

Carex cephaloidea *Dew.*

Woods near Adams. June. Rare in the eastern part of the State.

Carex canescens *L.*

Montauk Point. July. This is a singular form in which the uppermost spike is wholly staminate or nearly so. I call it var. *staminata.*

Carex fœnea *Willd* var. **perplexa** *Bailey.*

Rocky hills near Whitehall. July. In our specimens the spikes are distinctly narrowed at the base, the heads are sometimes slightly nodding and the inner face of the perigynium is less prominently nerved. They appear to approach more nearly *C. straminea.*

Carex tribuloides *Wahl.* var. **Bebbii** *Bailey.*

Lansingburgh. *Howe.* Variety *reducta* Bailey was collected at Blue Mountain lake in a form with the spikes aggregated in an oblong head, an inch or an inch and a half long. It might be called form *aggregata.*

Setaria Italica *Kunth.*

Raquette lake. A dwarf form with spikes scarcely half an inch long, apparently the result of an attempt to cultivate the Hungarian grass in a cold climate and an uncongenial soil.

Agrostis alba *L.* var. **minor** *Vasey.*

Lansingburgh. *Howe.* A form closely resembling this in external appearance, but having an awn as long as the flower and a palet about one-fourth as long as the flowering glume, was collected at Riverhead. It is well marked by the awn, which rises near the base of the flower and is somewhat bent in the middle, but other forms also have the same kind of an awn, notably the one which in the Flora of New York is referred to *A. stricta.*

Calamagrostis Canadensis *Bv.*

In the Adirondack region this common grass often has the panicle contracted both before and after flowering.

Trisetum subspicatum *Br.* var. **molle** *Gr.*

Abundant on the rocky banks of Black river below Brownville. June.

Poa serotina *Ehrh.*

On dry rocky hillsides near Whitehall is a form having panicles of comparatively few two-flowered spikelets.

Glyceria nervata *Trin.*

Woods near Adams. June. This is a leafy form with small green flowers and spikelets for which Dr. Vasey suggests the name var. *parviflora.*

Glyceria grandis *Wats.*

Whitehall. July. A form with green spikelets. It grew in the shade.

Aspidium spinulosum *Sw.*

The typical form of this fern is said to be rare in this country. It is very abundant near the top of Blue mountain. August.

Lygodium palmatum *Sw.*

McDonough, Chenango county. *Mrs. D. B. Fitch.* This is the second station in which this fern has been found in our State.

Botrychium ternatum *Sw.*

Alcove. *Shear.* A singular form with two fertile fronds.

Amanita muscaria *L.* var. alba *Pk.*

This variety is common about Alcove. *Shear.* It also occurs on Long Island in two forms, the normal one and a smaller one in which the warts of the pileus are evanescent or wanting. Not infrequently it makes a close approach to white forms of *A. pantherina*, in having the upper part of the bulb uniformly margined by the remains of the definitely circumscissile volva, but this margin is more acute than in that species.

Armillaria mellea *Vahl.*

There seems to be no end to the variations of this most polymorphous species. A well marked variety, var. *bulbosa*, has the stem rather short and terminating below in a large bulb. Two patches of this variety were found near Shokan. The plants were growing on the ground under hemlock trees, *Tsuga Canadensis*, and were generally cæspitose. There were scores of these tufts and in all, the plants had bulbous stems. This is the direct counterpart to var. *radicata*, in which the stem ends below in a long root-like point which penetrates the earth deeply, and resembles the tap-root of *Collybia radicata*. Varieties *bscura flava* and *glabra* of Gillet all occur in our State, and to these may be added also var. *albida* Pk. in which the pileus is white or whitish. I have also received from Dr. Taylor of Washington, D. C., and from Dr. Jelliffe of Brooklyn, a densely cæspitose, slender-stemmed form with no annulus, it being evanescent or entirely wanting This I call var. *exannulata*. It is scarcely distinguishable from *Clitocybe aquatica* Banning, and *Clitocybe monadelpha* Morg., which, I suspect, will yet have to be referred to this species. According to Quelet, *Clitocybe socialis* DC., and *Agaricus gymnopodius* Bull, also probably belong here.

The abortive form often associated with *A. mellea* and in no way distinguishable from the abortive form of *Clitopilus abortivus*, has a farinaceous taste, but this is lost in cooking. When cooked and properly seasoned this abortive form is quite as well-flavored and as good to eat as the normal form.

Armillaria viscidipes *Pk.*

This fine large species was found near Shokan, growing on the banks of a stream The stem sometimes penetrates the earth quite deeply and the annulus at first conceals the lamellæ.

Tricholoma terreum *Schæff.*

Var. *atrosquamosum* (T. atrosquamosum *Chev.*), occurs near Shokan.

Tricholoma fumescens *Pk.*

Fine specimens of this rare species were found near Shokan. The plants sometimes attain a size considerably larger than the dimensions of the typical form, the pileus being even two or three inches broad and the stem six lines thick. The taste is at first farinaceous, then sweetish. The lamellæ in the dried specimens are almost as black as in mature *Agaricus campester*.

Pholiota discolor *Pk.*

Var. *minor.* Small; pileus 6 to 10 lines broad, chestnut color when young or moist; stem about 1 line thick, at first clothed with whitish fibrils. Among mosses about or on the base of stumps. Shokan. September.

Galera teneroides *Pk.*

This species is not rare in the Adirondack woods. It often grows on decaying wood and branches. The color, though approaching that of *G. tener*, is more dull or brownish both when moist and when dry. The moist pileus is sometimes striatulate almost to the disk.

Agaricus silvicola *Vitt.*

The New York specimens heretofore referred to this species differ in some respects from the European plant if we may rely upon the published descriptions. The stem is quite constantly abruptly bulbous at the base, and the annulus is usually double, the lower or exterior one being of a floccose texture, smaller and split in a radiating manner as in that of *A. arvensis.* The very young lamellæ are also whitish as in that species and wounds or bruises of the flesh are apt to become yellowish, all of which indicate a closer affinity in our plant to *A. arvensis* than to *A. campester.* It seems to me, therefore, that greater scientific accuracy will be attained by referring our plant to *A. arvensis* as a var. *abruptus*, and considering it distinct from the European *A. silvicola*, which is described as having a simple annulus and which is figured as having the stem slightly and gradually thickened at the base. The name *abruptus* will indicate the character of the bulb in our plant. I have made trial of its edible qualities and find it very good eating, though scarcely as highly flavored as the common mushroom.

Psilocybe squalidella *Pk.*

Var. *cæspitosa.* Densely cæspitose; pilei often irregular from mutual pressure, firm but flexible and elastic, pale-alutaceous or watery-brown when moist, ochraceous or reddish-yellow when dry; stem subcartilaginous, somewhat fibrous, stuffed or hollow, frequently wavy, reddish-brown or rufescent, paler at the top, especially when young, usually with a dense whitish or gray villosity at the base.

In wet places. Shokan. September.

The typical form of the species was referred to Hypholoma, but the absence of any well-developed veil and the subcartilaginous texture of the stem indicate that its true place is in Psilocybe, in the vicinity of *P. spadicea.*

Cortinarius pulchrifolius *Pk.*

Delmar and Shokan. September. This rare species, which is well-marked by the peculiar color of the young lamellæ which resembles that of the lamellæ of *Clitocybe laccata* or *C. ochropurpurea*, was discovered on Long Island in 1880, but until this year I had not observed it again. The filaments of the veil are sometimes very copious.

Paxillus involutus *Fr.*

In the uncooked state this fungus has a harsh unpleasant flavor, but it loses this to a great extent in cooking. The flesh also assumes a dark color in cooking, for which reason, together with its want of delicious flavor, I should class it as a second-rate edible species.

Boletus affinis *Pk.*

Sandy soil. Amagansett. July. This has been tested as to its esculent properties. It has an agreeable flavor and is moderately tender. The flesh is white, at first firm but becoming softer with age. The color of the pileus also becomes paler with age.

Polyporus circinatus *Fr.*

Var. *proliferus.* Like the typical form but having one or more pilei developed from the upper surface of the first one. Fulton Chain. August.

Polyporous cuticularis *Fr.*

Standing trunk of maple, *Acer saccharinum.* Shokan. September. The incurved margin of the pileus is a very noticeable and good distinguishing feature of this species.

Polyporus sulphureus *Fr.*

If taken when fresh and young, before the pores have formed, and carefully cooked, this fungus makes a very palatable dish.

Trametis Sepium *Berk.*

This species often occurs in a resupinate form, which, when growing in the woods, is sometimes several inches in extent. The pileate form is generally very narrow though sometimes greatly elongated laterally by the confluence of several individuals.

Stereum complicatum *Fr.*

Var. *laceratum.* Margin of the pileus lacerated or multifid. Shokan. September.

Pterula setosa *Pk.*

Dr. Patouillard has founded a new genus, *Hirsutella*, to which he has transferred this species. He also transfers *Thelephora pedicellata* Schw. to a new genus, *Septobasidium.*

Comatricha aqualis *Pk.*

Mr. Geo. Massee, in his Monograph of the Myxogastres, concludes that the genus Comatricha is so intimately connected with the genus Stemonitis that it is untenable. He therefore places this and other species of Comatricha in Stemonitis. This species is sometimes abundant on decaying wood of sugar maple in the Adirondack forests. The thin fugacious walls of the sporangia have a silvery luster.

Trichia reniformis *Pk.*

Bark of striped maple, *Acer Pennsylvanicum.* Fulton Chain. August. A rare but well-marked and very distinct species. The clustered or subcæspitose mode of growth, the brown color of the peridia and the short elaters are peculiar features. It has also occurred at Karner on bark of red maple, *Acer rubrum.*

Didymium microcarpum. *Rost.*

An apparent variety of this species has spores a little larger than in the type and on smooth surfaces the stem rises from a circular hypothallus, which is adorned with radiating lines as in *D. radiatum.*

Chrysomyxa Pyrolæ *Rostr.*

Living leaves of *Pyrola chlorantha.* Delmar. June. The uredo form on this host has the sori much more scattered than on the leaves of *Pyrola rotundifolia.*

Plowrightia morbosa *Sacc.*

This noxious fungus is subject to considerable variation in its behavior and in its time of fruiting. Specimens were collected on choke cherry, *Prunus Virginiana*, near Karner, May 16th, in which conidia and ascospores were both present in abundance. Conidia-bearing excrescences were also found which were evidently due to the sowing of spores, as they were alone on branches containing no others. These probably were due to last year's sowing of spores, for if of the present year's sowing they must have developed with unusual rapidity. Specimens of this fungus were also collected on the wild red cherry, *Prunus Pennsylvanica*, on the slopes of Blue mountain. The excrescences were mostly single on the branches and gave no evidence of a disposition to spread by the extension of the mycelium. In many cases the affected branch was already dead or in a dying condition, in which cases there would, of course, be no spread of the disease by the mycelium.

Cryptospora suffusa *Tul.*

Var. *nuda*. Stroma not suffused with a yellowish dust. On dead stems of alder and hazel-nut. Karner and West Albany. The black circumscribing line is also apparently absent in some cases.

(F.)

NEW YORK SPECIES OF PLUTEOLUS.

Pleuteolus *Fr.*

Pileus slightly fleshy, conical or campanulate, then expanded, viscid, the margin at first straight, appressed to the stem; stem subcartilaginous, distinct from the hymenophorum; lamellæ rounded-free. *Hym. Europ.*, p. 266.

This genus corresponds to the genus Pluteus in the pink-spored series. The species are similar in structure to the species of that genus, but they differ somewhat in the character of the stem and in the color of the lamellæ and spores. Its species were separated by Fries from the genus Galera because of their viscid pileus and free lamellæ. I have included in it two species formerly referred to Galera by me. They are *Galera expansa* and *G. callista.* They do not quite fully meet the requirements of the generic character inasmuch as their lamellæ are not entirely free, but in other respects, and especially in the viscid pileus, they agree better with this genus than with Galera. The attachment of the lamellæ to the stem is very slight, but just enough to show the intimate relationship of the two genera.

Synopsis of the Species.

Lamellæ wholly free.................................... 1
Lamellæ slightly adnexed............................... 2
1. Plant growing on dung or rich soil .... coprophilus.
1. Plant growing on decaying wood............... reticulatus.
2. Plant growing on damp soil in exsiccated water holes.. callistus.
2. Plant growing on decaying wood or rich soil... expansus.

Pleuteolus coprophilus *n. sp.*

Dung-loving Pluteolus.

Pileus thin, submembranous, fragile, conical or campanulate, becoming nearly plane, somewhat viscid when moist, finely striate on the margin, pinkish-grey; lamellæ narrow, crowded, free, pale cinnamon; stem long, straight or somewhat flexuous, hollow, white, sometimes tinged with pink; spores elliptical, dark-ferruginous, .0005 to .0006 in. long, about .0003 in. broad.

Pileus 1 to 1.5 in. broad; stem 2 to 3.5 in. long, 1 to 2 lines thick.

Dung heaps. Albany and Warren counties. May and June.

The plants sometimes are cæspitose. The striations of the pileus are similar to those of *Galera lateritia*, from which this species is separated by its more expanded viscid pileus, different color and free lamellæ.

Pluteolus expansus *Pk.*

Expanded Pluteolus.

(*Galera expansa* Pk. Twenty-sixth State Mus. Rep., p. 58.)

Pileus submembranaceous, becoming nearly plane or centrally depressed, viscid, plicate-striate on the margin, brownish-ochraceous, often tinged with yellow, grey, pink or greenish hues; lamellæ narrow, close, rounded behind, slightly adnexed, pale cinnamon or ferruginous; stem rather long, slender, fragile, equal or slightly tapering upward, hollow, faintly striate, pruinose, yellow or greenish-yellow; spores .00045 to .0005 in. long, .00025 to .0003 broad.

Pileus 1 to 1.5 in. broad; stem 3 to 4 in. long, 1 to 2 lines thick.

Decaying wood and rich ground. Onondaga and Rensselaer counties. June to August.

Var. *terrestris*. Pileus grayish-yellow, tinged with green, stem greenish-yellow. Growing on rich or well-manured soil. The plicate striations of the pileus are similar to those of *Galera flava* and *G. coprinoides*. The species has been removed to this genus because of the viscidity of the pileus, nevertheless it must be confessed that such a feature is scarcely satisfactory for generic distinction.

Pluteolus callistus *Pk.*

MOST BEAUTIFUL PLUTEOLUS.

(*Galera callista* Pk. Twenty-sixth State Mus. Rep., p. 59.)

Pileus thin, expanded, subumbonate, smooth, viscid, striatulate on the margin, olivaceous or ochraceous, the umbo bright chestnut color; lamellæ thin, close, ventricose, adnexed, easily separating from the stem, yellowish becoming bright ferruginous; stem equal, hollow, pruinose, yellow; spores elliptical, .00035 to .0004 in. long, .0002 to .00025 broad.

Pileus 6 to 10 lines broad; stem 1 to 1.5 in. long, .5 line thick.

Exsiccated water holes in low swampy woods. Lewis county. September.

This pretty little agaric was discovered in 1872, but has not since been rediscovered. It may, therefore, be regarded as very rare. In the dried specimens the lamellæ are white on the edge, and the pileus has assumed a dull metallic green color. The species is placed in this genus because of its expanded and viscid pileus.

Pluteolus reticulatus *Pers.*

RETICULATED PLUTEOLUS.

(Hym. Europ., p. 266. Sylloge vol. v., p. 859.)

Pileus slightly fleshy, campanulate, then expanded, viscous, reticulate with anastomosing veins, pale violaceous, striate on the margin; lamellæ free, ventricose, crowded, saffron-ferruginous;

stem hollow, fragile, fibrillose, mealy at the top, white; spores elliptical, ferruginous, .0004 to .0005 in. long, .0002 to .00025 broad.

Pileus 1 to 2 in. broad; stem 1 to 2 in. long, 1 to 2 lines thick.

Decaying wood. Cattaraugus county. September.

The specimens which I have referred to this species appear to be a small form with the pileus scarcely more than an inch broad and merely rugose on the disk, not distinctly reticulate as in the type. In the dried specimens the pileus has assumed a dark violaceous color. The dimensions of the spores have been taken from the American plant. I do not find them given by any European author.

NEW YORK SPECIES OF GALERA.

Galera *Fr.*

Veil none or fibrillose. Stem subcartilaginous, continuous with the hymenophorum, tubular. Pileus more or less membranaceous, conical or oval, then expanded, striate, the margin at first straight and appressed to the stem. Lamellæ not decurrent. *Hym. Europ.*, p. 266.

The species of this genus are small and mostly rather fragile. The pileus is thin and when young is conical, oval or bell shaped, but in some at least, it becomes expanded with age. When young or moist it has a watery, or hygrophanous appearance, and is then either striate or striatulate because of its thinness. The colors are either whitish, yellow, ochraceous, cinnamon or ferruginous in nearly all of our species, but owing to the hygrophanous character these generally become paler in the dry plant. The lamellæ are commonly yellowish, tawny, cinnamon or ferruginous. The stem is slender, often straight, fragile and hollow and colored like the pileus. The genus holds the same place in the ochraceous-spored series that Mycena holds in the white spored series and Nolanea in the pink-spored series. Some grow on dung or in rich grassy ground, others are found in woods, either on naked soil or on decaying leaves, wood or branches and others still occur habitually in wet or damp places among Sphagnum or other mosses.

The species have been arranged by Fries in three groups or sections. Of the first section we have six representatives, of the second, three, and of the third, one. An additional section has been formed which contains two species One-half of our twelve species appear to be peculiar to this country.

SYNOPSIS OF THE SPECIES.

	Plants growing among mosses	1
	Plants not growing among mosses	4
1.	Pileus commonly 4 to 6 lines broad	2
1.	Pileus commonly 9 to 12 lines broad	Sphagnorum.
2.	Margin of the pileus naked or not fibrillose	3
2.	Margin of the pileus adorned with white fibrils	rufipes.
3.	Stem pruinose at the top	Hypnorum.
3.	Stem naked at the top	aquatilis.
4.	Plant growing on dung or in grassy places	5
4.	Plant growing in uncultivated places	8
5.	Pileus plicate-sulcate	coprinoides.
5.	Pileus not plicate-sulcate	6
6.	Pileus ferruginous when moist	ovalis.
6.	Pileus paler, yellowish or tawny-cinnamon when moist	7
7.	Pileus narrowly conical, striate when dry	lateritia.
7.	Pileus broadly conical, not striate when dry	tener.
8.	Plant growing on hulls of buckwheat	sulcatipes.
8.	Plant having some other habitat	9
9.	Pileus pale-yellow	flava.
9.	Pileus some other color	10
10.	Lamellæ narrow, close	teneroides.
10.	Lamellæ broad, subdistant	inculta.

CONOCEPHALÆ. Pileus conic-campanulate, hygrophanous, nearly even, when dry sprinkled with soft atoms; stem straight; lamellæ ascending, inserted in the top of the cone, somewhat crowded. Veil none.

Galera lateritia *Fr.*

BRICK-RED GALERA.

(Hym. Europ., p. 267. Sylloge Vol. v, p. 860.)

Pileus thin, narrowly conical or acorn-shaped, often becoming campanulate, hygrophanous, yellowish when moist, whitish or ochraceous when dry, finely striate on the margin; lamellæ narrow or linear, crowded, ascending, nearly free, pale-cinnamon or tawny-ferruginous; stem straight, slender, fragile, hollow, minutely striate, sprinkled with minute mealy particles or clothed with a minute villosity, white; spores elliptical, ferruginous, .0005 to .00055 in. long, .0003 to .00035 broad.

Pileus 6 to 12 lines broad; stem 2 to 3 in. long, scarcely 1 line thick.

Dung or rich grassy ground. Albany and Rensselaer counties. June to September.

This may be separated from the next following species by its more elongated narrowly conical pileus distinctly striate on the margin and by its narrower linear lamellæ. The striations are fine and close and often reach half way to the center of the pileus. In our specimens they are distinct even in the dried plant. We have seen no specimens having the pileus as dark colored as in the Friesian figure of the moist plant, but many of our American agarics are paler or have paler forms than the European figures indicate for the same species. The hygrophanous character of the pileus is less clearly shown than in *Galera tener*. As in that species, there are forms in which both pileus and stem are clothed with a minute downy pubescence. When partly dry the pileus feels sticky when pressed between the thumb and fingers.

Galera tener *Schæff.*

TENDER GALERA.

(Hym. Europ., p. 267. Sylloge Vol. v. p. 860.)

Pileus thin, conical broadly and obtusely conical or campanulate, hygrophanous, pale-ferruginous or tawny-cinnamon color and striatulate when moist, whitish or creamy-yellow when dry, often sprinkled with shining atoms; lamellæ broad, rather close, ascending, adnate, cinnamon color; stem straight, slender, fragile, hollow, somewhat shining, commonly finely striate, colored like the pileus; spores elliptical, dark ferruginous, almost rubiginous, .0005 to .00065 in. long, .0003 to .0004 broad.

Pileus 4 to 10 lines broad; stem 1.5 to 3 in. long, scarcely 1 line thick.

Dung and rich grassy ground. Common. June to September.

This is our most common species of Galera. It sometimes grows in great abundance where cattle have been yarded and in rich lawns or pastures. It is often found growing on dung in company with *Panæolus campanulatus*. It varies much in size. A small form, form *minor*, occurs having the pileus hemispherical and only three or four lines broad.

Var. *pilosella* (*Agaricus pilosellus* Pers.), has both pileus and stem clothed with a minute erect pubescence when moist. A form is sometimes found in which the center of the pileus is brown or blackish-brown.

Galera teneroides *Pk.*

WOOD-LOVING GALERA.

(Twenty-ninth State Museum Report, p. 39.)

Pileus thin, campanulate or expanded, hygrophanous, brownish-cinnamon and striatulate when moist, paler when dry; lamellæ narrow, close, yellowish-cinnamon; stem straight, slender, hollow, colored like the pileus; spores nearly elliptical, subluteus, .0003 to .00035 in. long, .00016 to .0002 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, about half a line thick. Ground, dung and decaying wood and branches in woods. Adirondack mountains and in Albany county. June to September.

This species is closely related to *Galera tener* as may be inferred from the name, but it is nevertheless distinct in its more brown or smoky-tinted color, more expanded mature pileus, more narrow lamellæ and smaller paler spores.

Galera ovalis *Fr.*

OVAL GALERA.

(Hym. Europ., p. 268. Sylloge Vol. v, p. 862.)

Pileus somewhat membranaceous, oval or campanulate, hygrophanous, brownish-ferruginous and obscurely striatulate on the margin when moist, paler and even when dry, fragile; lamellæ nearly free, very broad, ventricose, ferruginous; stem straight, slender, hollow, slightly striate, colored nearly like the pileus; spores elliptical, dark-ferruginous, .0004 to .0005 in. long, .00025 to .0003 broad.

Pileus 8 to 12 lines broad; stem 3 to 4 in. long, about 1 line thick.

Dung. Albany county. June.

The specimens which I have referred to this species were collected many years ago. I have not found any like them since. They differ from *Galera tener* chiefly in their larger size and darker color, both when moist and when dry. The species is evidently a very rare one.

Galera sulcatipes *Pk.*

SULCATE-STEMMED GALERA.

(Thirty-fifth State Mus. Rep., p. 132.)

Pileus thin, ovate, conical or subcampanulate, hygrophanous chestnut-colored and mostly striatulate on the margin when moist, paler when dry; lamellæ ascending, subdistant, adnate, whitish becoming ferruginous-cinnamon; stem slender, straight or flexuous, equal, hollow, rather tenacious, striate-sulcate, silky, floccose-pruinose toward the base, white; spores elliptical, ferruginous-cinnamon, .00025 to .0003 in. long, .00016 broad.

Pileus 5 to 8 lines broad; stem 1.5 to 3 in. long, about 1 line thick.

Gregarious on a pile of buckwheat bran lying on the ground in woods. Albany county. August.

The white and almost shining stem is striate and silky above, pulverulent or floccose-pruinose toward the base where it generally assumes a greenish-blue color if handled when moist. The pileus fades in drying to subochraceous. The lamellæ are sometimes white on the edge. Found in 1881 but not detected since. A rare species but very distinct in the character of its stem and in its peculiar habitat.

Galera inculta *Pk.*

RUDE GALERA.

(Forty-first State Mus. Rep., p. 69.)

Pileus thin, somewhat fragile, campanulate, then convex or nearly plane, obtuse or rarely with a small umbo, hygrophanous, cinnamon color and striatulate when most, buff color and atomate when dry, sometimes minutely pitted or corrugated, rarely rimose-squamulose; lamellæ broad, subdistant, ventricose, adnexed, white crenulate on the edge, at first pallid, then pale-cinnamon; stem straight or subflexuous, hollow, brittle, slightly silky, reddish-brown, sometimes mealy or pruinose at the top and white-villose at the base; spores subelliptical, pointed at each end, brownish-ferruginous, .0006 to .00065 in. long, .0003 broad.

Pileus 6 to 12 lines broad; stem 1 to 1.5 in. long, .5 to 1 line thick.

Damp ground under willows and alders. Catskill mountains. September.

The moist pileus resembles in color that of the small glabrous striatulate form of *Clitocybe laccata*, the dry one that of *Galera tener*. The specimens were found growing with *Naucoria paludosa*, from which they may be distinguished by the more campanulate pileus, the broader and more distant lamellæ and the larger spores.

BRYOGENÆ. Pileus membranaceous, campanulate, striate, glabrous, hygraphanous, even when dry, opake, slightly silky; stem thin, lax, flexile; lamellæ broadly and plainly adnate, broad, subdenticulate. Slender, growing among mosses, the veil very fugacious.

Galera aquatilis *Fr.*

AQUATIC GALERA.

(Hym. Europ., p. 270. Sylloge Vol. v, p. 869.)

Pileus membranaceous, campanulate or convex, glabrous, watery, hygrophanous, pallid-honey color and striatulate on the margin when moist, soft and whitish when dry, often with a yellowish papilla; lamellæ distant, triquetrous, plane, adnate, pallid; stem very long, slender, even, glabrous, whitish or yellowish; spores elliptical, .0004 in. long, .00024 broad.

Pileus 5 to 6 lines broad; stem (in our specimens) 2 to 3 in. long, scarcely 1 line thick.

Among mosses in wet places. Catskill mountains. July. A rare species. In our specimens the stem is less elongated than in the European plant.

Galera Sphagnorum *Pers.*

SPHAGNUM GALERA.

(Hym. Europ., p. 270. Sylloge Vol. v. p. 869.)

Pileus thin, conical convex or expanded, sometimes with a small umbo or papilla, hygrophanous, tawny or subochraceous and usually striatulate on the margin when moist, pale-ochraceous or buff when dry; lamellæ thin, subdistant, tawny-ochraceous;

stem slender, hollow, more or less fibrillose, subflexuous, colored like the pileus; spores elliptical or subovate, .0004 to .0005 in. long, .00025 to .0003 broad.

Pileus 6 to 12 lines broad; stem 2.5 to 5 in. long, 1 to 1.5 lines thick.

In marshes among Sphagnum. Fulton, Rensselaer and Seneca counties and Adirondack mountains. June to August.

This is easily distinguished from *Galera Hypnorum*, to which it has sometimes been subjoined as a variety, by its larger size, more expanded pileus, fibrillose stem and peculiar place of growth. There is a notable form with a well-developed veil which may be designated var. *velata*. Veil white, webby or almost membranous, breaking up on the upper part of the stem and forming floccose scales, often evanescent with age. In this variety the moist pileus is sometimes chestnut color or bay red, being darker than in the ordinary forms of the species. Very often the fibrils of the stem are grouped in flakes or patches in such a way as to give a wavy appearence to the stem itself.

Galera Hypnorum *Batsch.*

HYPNUM GALERA.

(Hym. Europ., p. 270. Sylloge Vol. v, p. 868.)

Pileus membranaceous, conical or campanulate, obtuse or papillate, glabrous, hygrophanous, watery-cinnamon or subochraceous and striatulate when moist, paler when dry, often fading to yellowish or buff; lamellæ broad, adnate, ventricose, distant, tawny or cinnamon color, often whitish flocculose on the edge; stem slender, hollow, flexuous, smooth, pruinose at the top, commonly colored like the pileus; spores elliptical, .0004 to .0005 in. long, .00024 to .0003 broad.

Pileus 3 to 6 lines broad; stem 1 to 2 in. long, less than a line thick.

Among mosses in woods, either on the ground or on prostrate decaying trunks. Common in hilly or mountainous districts. June to September.

This is a small species but it varies considerably in size and color. Var. *nigripes* has a blackish-brown stem.

ERIODERMÆ. Pileus submembranaceous, the veil manifest, superficial, separating, at first silky or squamulose, especially on the margin.

Galera rufipes *Pk.*

REDDISH-STEMMED GALERA.

(Forty-second State Mus Rep p. 20. Botanist's Edition.)

Pileus campanulate or convex, hygrophanous, reddish-tawny and striatulate when moist, whitened on the margin by the remains of the white fibrillose veil, pale-ochraceous when dry; lamellæ broad, subdistant, emarginate, yellowish or subochraceous, slightly crenulate on the whitish edge; stem slender, hollow, slightly fibrillose below, pruinose at the top, reddish-brown; spores elliptical, subochraceous, .00025 to .0003 in. long, .00016 to .0002 broad.

Pileus 4 to 6 lines broad; stem about 1 in. long, .5 line thick.

Mossy ground in woods. Essex county. September.

This species is easily separated from *Galera Hypnorum* by the whitened fibrillose margin of the pileus and by its smaller spores.

PLICATELLÆ *sec. nov.* Pileus membranous, conical or campanulate, more or less expanded in maturity, plicate-striate.

The two species here described differ so much in the character of the pileus and its striations from the other species of the genus that I have thought it best to institute a new Section for their reception. I find no description of any similar European species. They are probable peculiar to this country.

Galera flava *Pk.*

PALE-YELLOW GALERA.

(Forty-fifth State Mus. Rep., p. 19.)

Pileus membranous, ovate or campanulate, moist or subhygrophanous, obtuse, plicate-striate on the margin, yellow; lamellæ thin, narrow, crowded, adnate, at first whitish, then yellowish-cinnamon; stem equal or slightly tapering upward, hollow, slightly striate at the top, sprinkled with white mealy particles, white or yellowish; spores ovate or subelliptical, brownish-ferruginous, .0005 in. long, .0003 broad.

Pileus 6 to 12 lines broad; stem 2 to 3 in. long, 1 to 1.5 lines thick.

Damp vegetable mold in woods. Tompkins county. July.

This species is well marked by the pale-yellow color of the pileus and its plicate striations which are very distinct even in

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the dried specimens. They extend half way to the disk or more. When dry the pileus is seen to be sprinkled with shining atoms as in some other species of the same genus. Occasionally the yellow cuticle cracks into squamules or small scales.

Galera coprinoides *Pk.*

COPRINUS-LIKE GALERA.

(Twenty-sixth State Mus. Rep. p. 59. *Agaricus plicatellus* Twenty-ninth Rep. p. 66.)

Pileus membranous, campanulate, soon expanded, often split on the margin, plicate-sulcate to the small even disk, yellowish or ochraceous-yellow; lamellæ narrow, close, rounded behind, colored like the pileus; stem slender, equal, hollow, minutely hairy or pruinose, white; spores elliptical, .00028 to .0003 in. long, .0002 broad.

Pileus about 6 lines broad; stem about 1 in. long, half a line thick.

Grassy ground. Cayuga county. August.

This small plant was discovered in 1872, but I have not found it since. It is manifestly very rare. The structure of the pileus and its plications are strongly suggestive of the character of the pilei of some of the small species of Coprinus, as is indicated by the name.

The name *Agaricus plicatellus* was substituted for *Agaricus coprinoides* when it was found that the latter name had been previously applied to another species, but since the former subgenus Galera has been raised to generic rank it permits the restoration of the original specific name.

[From the 47th Report of the New York State Museum of Natural History.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

State of New York.

Made to the Regents of the University, Pursuant to
Chapter 355 of the Laws of 1883.

BY CHARLES H. PECK.

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ANNUAL REPORT

OF THE

STATE BOTANIST.

Office of the State Botanist,
Albany, *January*, 1894.

To the Honorable the Regents of the University of the State New York:

I have the honor to present to you my annual report for the year 1893.

Very respectfully.

CHARLES H. PECK.

REPORT.

To the Honorable the Regents of the University of the State of New York:

Gentlemen.— I have the honor of communicating to you the following report:

Specimens of plants to represent the flora of the State in the Herbarium of the State Museum have been collected by the Botanist during the past season in the counties of Albany, Cayuga, Dutchess, Essex, Herkimer, Jefferson, Oneida, Onondaga, Rensselaer, Saratoga, St. Lawrence and Sullivan.

Specimens contributed by correspondents were collected in the counties of Albany, Erie, Essex, Kings, St. Lawrence, Suffolk, Richmond and Tompkins.

Specimens of 261 species of plants have been added to the Herbarium of which 245 were collected by the Botanist and 16 were contributed.

Of the added plants 40 belong to species not before represented therein and of these 11 are deemed new species. The remaining specimens, though not representing species new to the Herbarium, are intended to make more complete and satisfactory the exhibit of the species to which they belong.

A list of the species of which specimens have been added is marked A.

Specimens have been contributed to the Herbarium by 15 contributors. Some of these are plants found beyond our limits but they are valuable for reference, comparison and study. A list of the contributors and of their respective contributions is marked B.

A record of species not before reported, together with their localities, time of collection, descriptions of new species and other matters of interest, also descriptions of a few extralimital species of which specimens were sent for identification, will be found marked C.

A record of observations on species previously reported, remarks concerning them and descriptions of new or peculiar forms or varieties will be found under D. An inspection of this part of the report will show that more attention than usual has been given to the study of the variations in our flowering plants and that there are many deficiencies in the descriptions of the Manual. The study of these variations and their causes is a most interesting one and is not without its practical value. It is necessary to give us a more complete knowledge of the limits and behavior of species and to enable us to write complete and satisfactory descriptions of them. It is noticeable that most of our cultivated plants are very variable. By cultivation, selection, crossing and close pollination the natural variations have been fixed and even intensified so that we have varieties apparently as distinct as species themselves. Differences in soil, climate, degrees of moisture and prevailing temperature appear to be causes of variation in some cases but these external influences are not sufficient to explain all cases of variation. For example in a low strip of land lying along the railroad near Narrowsburg, five distinct forms or varieties of the common racemed loosestrife were found. These, so far as could be ascertained, all grew in the same kind of soil and subject to the same external conditions.

In a single patch of the bland or early wild rose growing near the station at Cooperstown Junction although the patch was but a few feet in diameter, some of the young shoots have infrastipular spines, but most of them, as usual, were destitute of these spines. What should cause the differences noted in these instances? It is sometimes said that plants have an inherent tendency to vary, but this scarcely enlightens us or gives a satisfactory explanation of the results observed. Even the influence of cross pollination and the action of the laws of heredity do not seem a sufficient or satisfactory explanation in all cases. But whatever the hidden or unknown causes of such variations may be the resulting phenomena are certainly interesting to the student of nature and in the case of useful plants they are not without utility. They indicate a peculiar kind of adaptability in the species to varying conditions of growth and to wider fields of usefulness.

Some special effort has been made to perfect the representation of our native pond weeds in the Herbarium. At the time the State Flora was written by Doctor John Torrey nine species of Potamogeton were recorded as inhabiting New York waters. In the Monograph of the Naiadaceæ of North America recently prepared by Doctor Thomas Morong, 27 New York species are recognized. Of these 26 are now represented in the Herbarium. Some of these species are extremely variable and require many specimens to properly represent them in all their variations. Many forms and varieties new to the Herbarium have been collected, also one species new to the Herbarium and one new to the State. *Potamogeton lucens* var. *Connecticutensis* was discovered by Mr. L. H. Hoysradt in Stissing pond several years ago. This still remains its only known locality in our State. From it specimens of this rare form have been obtained. More typical forms were collected in Oneida and Cayuga lakes where the plants are by no means scarce. A list of the New York species of Potamogeton is given in another part of this report. "The Plains" is a name given to a tract of land lying along the upper waters of the Oswegatchie river in the southern part of St. Lawrence county. Being desirous of observing the character of its vegetation this place was visited. It is destitute of trees with the exception of a few scattered poplars and tamaracks. Clumps of willows and of the common meadow sweet with some mountain fly honeysuckle, an abundance of Canadian blueberry and some choke cherry and choke berry bushes are the principal shrubs. The prickly blackberry, *Rubus setosus*, a northern species, is here and the common wintergreen. Goldenrods were abundant, the Canadian goldenrod prevailing and showing marked variations. The willow-leaved goldenrod, *Solidago uliginosa*, which usually grows in swamps and wet places, here grows on dry sandy soil. A peculiar departure from the ordinary habitat was also noticed in two grasses, the white-grained mountain rice, *Oryzopsis asperifolia*, and the purple wild-oat, *Avena striata*. These usually grow in the shade of trees or in woods, but here both were abundant and growing exposed to the full sunlight. The land of this tract is not level but rises gradually as it recedes from the river, and in some places there are depressions or swales. In these, several species of sedge grow and other plants fond of moist or wet soil. The whole area was strongly suggestive of an old wornout or abandoned farm. There was no evidence of former forest growth on it nor was it clear why trees had not occupied it. One guide claimed that fire had destroyed the timber but I saw no remains of charred trunks to bear out this claim. The indications point rather to poverty of soil as a partial explanation of the absence of forest trees and yet this is evidently not the whole nor a very satisfactory explanation.

The newspapers have recently reported several cases of mushroom poisoning. This emphasizes the importance of a more general and better knowledge of these plants and more care in selecting and eating them. It indicates that the action of the Board of Regents in directing the preparation of life-size colored figures of our edible and poisonous species of fungi and plain and simple descriptions of them was wise and needful. It is very desirable that the appropriation necessary for the publication of these plates and descriptions be made at the coming session of the Legislature. The question is often asked, how shall the edible mushrooms be distinguished from the poisonous or dangerous species. The answer is, there is no simple or peculiar mark or character by which they may be distinguished. It is necessary to know and to be able to recognize each species used for food by its own specific characters. All not known to be safe eating, should be rejected. This is the rule in the case of the higher orders of plants. A considerable number of species are known to be good for food, a few are known to be poisonous, either in root, herbage or fruit and a much larger number, while neither hurtful nor edible, are regarded as either worthless or useful for other than edible purposes. We invariably recognize those used for food by their own specific characters and do not look for any single mark or character by which to distinguish poisonous plants or fruits from edible ones. Sometimes the good and bad are closely related botanically and accidents happen from a failure to recognize specific characters. Thus poison hemlock is sometimes mistaken for sweet cicily, both belonging to the same family and having a similar general appearance. In the Nightshade family or Solonaceæ we find such food plants as the potato, tomato and eggplant associated botanically with such inedible or hurtful species as tobacco, henbane and thorn apple or stramonium. If we would avoid accidents we must know each species so well that no dangerous species will be mistaken for it. So among fungi we find that really excellent esculent, the royal mushroom, often called Cæsar's mushroom, *Amanita cæsarea*, associated not only in the same genus but even in the same group or section with the delusive and deadly phalloid mushroom, *Amanita phalloides*. Both are attractive in appearence, tender in substance and not at all repulsive in taste or odor, but to eat one is health and life, to eat the other is sickness and death.

But the species of fleshy fungi are so numerous and so similar in structure that much greater care is required in discriminating between the good and the bad, than is necessary in the case of flowering plants. It is scarcely to be expected that people generally will acquire sufficient knowledge to enable them to do this in all cases, but all who desire to use these plants as food may easily acquire from faithful figures and simple descriptions a sufficient knowledge to enable them to distinguish the more common and important species. There are at least 75 edible species found in our State, though many of them are rare or seldom seen in abundance. Some are both common and abundant and these may easily become familiar to those interested. In some countries of Europe where mushroom eating is more common than it is here, it has been found expedient to appoint inspectors of the markets whose duty it is to see that no hurtful species is offered for sale. But if people in the country see fit to run the risk of collecting and eating such as are not known to be safe and edible they must suffer the consequences.

There are certain rules that guide the mycologist and the skilled experimenter in estimating the probable character or edibility of untried species, but to these there are so many exceptions that they are not wholly reliable.

One rule is to reject all which are tough leathery or corky in texture. Even in the absence of any deleterious quality they would at least be indigestible. The fairy ring mushroom, *Marasmius oreades*, is an exception to this rule, for though it is rather tough it is often eaten with relish and with proper preparation its toughness is overcome. Some species are tender when young though tough when old. Some tough species may be utilized in making soups or in giving flavor to other dishes.

Another rule says reject all such as have an unpleasant taste or odor in the fresh state. The honey colored mushroom may be cited as an exception to this rule. Its taste is harsh and unpleasant when uncooked, but this to a great extent removed by proper cooking, and a very good and harmless meal may be made of it. Some species of Lactarius have a very hot, acrid or peppery taste when fresh, but this in some cases may be dispelled by cooking. Even the delicious lactarius and the chantarelle, whose edible qualities are highly commended, are not very pleasant in flavor when fresh.

In some species of Boleti the flesh where bruised or wounded quickly assumes a blue or greenish-blue color. The rule is to avoid all such species as dangerous.

One author counsels avoidance of all such as have pink or flesh-colored spores. An exception to this rule is found in the plum clitopilus, *Clitopilus prunulus*, which is regarded as a very good mushroom, notwithstanding its pink spores.

Even mushrooms which in good condition are palatable and nutritious may become unfit for food and even hurtful by age and decomposition or by becoming water-soaked or infested by the larvæ of insects. Even too long keeping before cooking has been known to make them deleterious. In one instance a large quantity of a species known to be edible was collected. The family made a meal of a part of them the same day. No evil results followed. The remaining part was reserved till the next day, then cooked and eaten. Those partaking of these stale samples were made sick and vomiting ensued. But all except one soon recovered after the rejection of the noxious material. Even the common edible mushroom is said to keep in good condition longer if cooked soon after it is gathered than if left in its raw state.

Several edible species have when fresh a farinaceous or meal-like taste and odor. From this some have drawn the inference that this is a mark of edible species, or at least that all which have this flavor are esculent. But there are many exceptions to this, for some when first tasted have a pleasant farinaceous flavor, which is quickly followed by one that is bitter or otherwise unpleasant.

From all this it will readily be seen how difficult it is to devise any general practical rule by which to separate the esculent from the dangerous species.

Probably the phalloid amanita, *Amanita phalloides*, is the one species above all others that causes the most of the deaths attributed to mushroom poisoning. The cap of this species varies somewhat in color, the form, which is entirely white, being the most common with us and the most often mistaken for the common mushroom. Only gross carelessness, however, could make such a mistake, for in this deleterious toadstool the stem is nearly always much longer proportionately than in the mushroom, it has an abrupt and large bulb at its base which is wanting in the mushroom, and its gills or lamellæ on the under surface of the cap are always white, while in the mushroom they are, when young, a beautiful pink or flesh color, but when old this changes to a brown or blackish color.

Considerable time was occupied in the early part of the year, as will be shown by the monthly reports, in preparing an exhibit of specimens of economic fungi for the World's Columbian Exposition. The questions asked me and the remarks of visitors overheard by me while placing this exhibit in position in the Horticultural Building indicate that it may be a valuable part in the Museum's exhibit as an educator of the public. It is composed of 61 species of edible fungi, 63 species of fungi growing on and injurious to wood, 18 species of parasitic fungi which are injurious to cultivated or useful wild plants, and six species that are injurious to noxious weeds and animals, and therefore beneficial to man. A list of the names of these species and varieties is marked E. A preliminary list of Hymenomycetous Fungi inhabiting our principal coniferous trees is marked F.

Respectfully submitted.

CHARLES H. PECK.

ALBANY, *September* 19, 1893.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Hieracium Marianum *Willd.*
Polygonum Douglassii *Greene.*
Potamogeton Vaseyi *Robbins.*
P. pulcher *Tuckm.*
P. lucens *L.*
Carex glabra *Boott.*
Panicum miliaceum *L.*
Psathyrella tenera *Pk.*
Hydnum subcarnaceum *Fr.*
Merulius tenuis *Pk.*
M. irpicinus *Pk.*
Stereum populneum *Pk.*
Lepidoderma fulvum *Mass.*
Æcidium Actææ *Opiz.*
Phoma enteroleuca *Sacc*
Cytospora ambiens *Sacc.*
C. carbonacea *Fr.*
Septomyxa persicina *Sacc.*
Discosia magna *Pk.*
Septoria Pisi *West.*
Septoria Scutellariæ *Thum.*
S. conspicua *E. & M.*
Haplosporella Symphoricarpi *Pk.*
Rhabdospora rhoina *Pk.*
Camarosporium metableticum *Trail.*
Volutella stellata *Pk.*
Epicoccum nigrum *Lk.*
Penicillium candidum *Lk.*
Cercospora tenuis *Pk.*
Cladosporium episphæricum *Schw.*
Zygodesmus granulosus *Pk.*
Peronospora Hydrophylli *Waite.*
Peziza Dudleyi *Pk.*
Exoascus Potentillæ *Sacc.*
Diatrype Hochelagæ *E. & E.*
Sphærella Chimaphilæ *Pk.*
Diaporthe decedens *Fr.*
Massariella Curreyi *Tul.*
Melanconis occulta *Sacc.*
Amphisphæria umbrina *Wint.*

Not New to the Herbarium.

Ranunculus circinatus *Sibth.*
R. septentrionalis *Poir.*
R. Pennsylvanicus *L.*
Coptis trifolia *Salisb.*
Thalictrum purpurascens *L.*
Actæa alba *Bigel.*
Asimina triloba *Dunal.*
Nymphæa reniformis *DC.*
Nuphar advena *Ait.*
Dentaria diphylla *L.*
Cardamine rhomboidea *DC.*
Arabis perfoliata *Lam.*
Nasturtium palustre *DC.*
N. hispidum *DC.*
Hesperis matronalis *L.*
Brassica oleracea *L.*
Raphanus sativus *L.*
Viola Canadensis *L.*
V. rostrata *Pursh.*
Silene stellata *Ait.*
Stellaria media *Sm.*
Ailanthus glandulosus *Desf.*
Acer spicatum *Lam.*
A. saccharinum *Wang.*
Prunus Americanum *Marsh.*
P. Persica *B. & H.*
Rubus Millspaughii *Britton.*
R. Canadensis *L.*
R. hispidus *L.*
Fragaria vesca *L.*
Agrimonia parviflora *Ait.*
Rosa blanda *Ait.*
Saxifraga aizoides *L.*
Tiarella cordifolia *L.*
Mitella diphylla *L.*
Ribes Grossularia *L.*
Myriophyllum spicatum *L.*
Callitriche heterophylla *Pursh.*
Sambucus racemosa *L.*
Galium Aparine *L.*
G. asprellum *Mx.*
G. trifidum *L.*
Solidago uliginosa *Nutt.*
S. juncea *Ait.*

Solidago Canadensis *L.*
Aster macrophyllus *L.*
A. Novi-Belgii *L.*
A. acuminatus *Mx.*
A. nemoralis *Ait.*
Erigeron strigosus *Muhl.*
E. Philadelphicus *L.*
Rudbeckia hirta *L.*
Bidens Beckii *Torr.*
Calendula officinalis *L.*
Anthemis Cotula *DC.*
Achillea Millefolium *L.*
Chrysanthemum Leucanthemum *L.*
Prenanthes Serpentaria *Pursh.*
P. altissima *L.*
Lactuca Canadensis *L.*
L. integrifolia *Bigel.*
Sonchus asper *Vill.*
Campanula aparinoides *Pursh.*
Vaccinium corymbosum *L.*
Rhododendron viscosum *Torr.*
R. maximum *L.*
Primula Mistassinica *Mx.*
Steironema lanceolatum *Gr.*
Lysimachia stricta *Ait.*
L. quadrifolia *L.*
L. Nummularia *L.*
Fraxinus Americana *L.*
F. sambucifolia *Lam.*
Apocynum cannabinum *L.*
A. androsæmifolium *L.*
Asclepias tuberosa *L.*
Gentiana linearis *Frœl.*
Lithospermum officinale *L.*
Physalis lanceolata *Mx.*
Mimulus ringens *L.*
M. moschatus *Dougl.*
Veronica Virginica *L.*
Utricularia vulgaris *L.*
Verbena hastata *L.*
Teucrium Canadense *L.*
Pycnanthemum incanum *Mx.*
Blephilia hirsuta *Benth.*
Brunella vulgaris *L.*
Rumex Patientia *L.*
Polygonum aviculare *L.*
P. amphibium *L.*
Asarum Canadense *L.*
Saururus cernuus *L.*
Dirca palustris *L.*
Pinus Banksiana *Lambert.*
P. resinosa *Ait.*
Picea nigra *Lk.*
P. alba *Lk.*
Larix Americana *Mx.*
Elodea Canadensis *Mx.*
Microstylis monophyllus *Lindl.*
Habenaria bracteata *R. Br.*
Cypripedium acaule *Ait.*
Clintonia borealis *Raf.*
Lilium Canadense *L.*
Pontederia cordata *L.*
Juncus militaris *Bigel.*
Luzula vernalis *DC.*
Typha latifolia *L.*
Potamogeton natans *L.*
P. Nuttallii *C. & S.*
P. Spirillus *Tuckm.*
P. lonchites *Tuckm.*
P. amplifolius *Tuckm.*
P. heterophyllus *Schreb.*
P. prælongus *Wulf.*
P. perfoliatus *L.*
P. crispus *L.*
P. zosteræfolius *Schum.*
P. pusillus *L.*
P. major *Morong.*
P. filiformis *Pers.*
P. pectinatus *L.*
Fimbristylis autumnalis *R. & S.*
Scirpus lacustris *L.*
S. sylvaticus *L.*
Eriophorum lineatum *B. & H.*
E. cyperinum *L.*
E. gracile *Koch.*
Carex tribuloides *Wahl.*
C. cristata *Schw.*
C. fœnea *Willd.*
C. straminea *Willd.*
C. mirabilis *Dew.*
C. siccata *Dew.*
C. bromoides *Schk.*
C. Deweyana *Schw.*
C. trisperma *Dew.*
C. canescens *L.*
C. sterilis *Willd.*
C. Muhlenbergii *Schk.*
C. rosea *Schk.*
C. vulpinoidea *Mx.*
C. stipata *Muhl.*
C. laxiculmis *Schw.*

Carex digitalis *Willd.*
C. laxiflora *Lam.*
C. albursina *Sheldon.*
C. Œderi *Ehrh.*
C. gracillima *Schw.*
C. æstivalis *Curt.*
C. debilis *Mx.*
C. virescens *Muhl.*
C. limosa *L.*
C. torta *Boott.*
C Houghtonii *Torr.*
C. squarrosa *L.*
C. utriculata *Boott.*
C. oligosperma *Mx.*
C. intumescens *Rudge.*
C. lurida *Wahl.*
C. communis *Bail*
C. Pennsylvanica *Lam.*
C. longirostris *Torr.*
Panicum latifolium *L.*
P. clandestinum *L.*
Phalaris arundinacea *L.*
Brachyelytrum aristatum *Bv.*
Agrostis alba *L.*
Arrhenatherum avenaceum *Bv.*
Avena striata *Mx.*
Danthonia spicata *Bv.*
D. compressa *Aust.*
Poa annua *L.*
P. compressa *L*
P. debilis *Torr.*
P. serotina *Ehrh.*
Festuca ovina *L.*
F. elatior *L.*
F. nutans *Willd.*
Bromus ciliatus *L.*
B. purgans *L.*
Agropyrum repens *Bv.*
Agropyrum violaceum *Lange.*
Flammula alnicola *Fr.*
Pluteolus expansus *Pk.*
Cortinarius argentatus *Fr.*
Russula uncialis *Pk.*
Cantharellus minor *Pk.*
Coprinus micaceus *Fr.*
Boletus subtomentosus *L.*
Polyporus resinosus *Fr.*
P. salicinus *Fr.*
Poria radiculosa *Pk.*
Porothelium fimbriatum *Fr.*
Corticium incarnatum *Fr.*
C. subaurantiacum *Pk.*
Entomosporium maculatum *Lev.*
Chrysomyxa Pyrolæ *Rostr.*
Ustilago anomala *Kze.*
Sphacelotheca Hydropiperis *DeBy.*
Uromyces Limonii *Lev.*
U. Trifolii *Lev.*
U. Polygoni *Fckl.*
U. Euphorbiæ *C. & P.*
Puccinia Galii *Schw.*
Sphæropsis malorum *Pk.*
Vermicularia liliacearum *Schw.*
Coryneum microstictum *B. & Br.*
Peridermium balsameum *Pk.*
Actinonema Rosæ *Fr.*
Cystopus candidus *Lev.*
C. spinulosus *DeBy.*
C. Amaranthi *Berk.*
Ramularia Armoraciæ *Fckl.*
Fusarium oxysporum *Schl.*
Diatrype virescens *Schw.*
Hypoxylon perforatum *Schw.*
H. atropurpureum *Fr.*
Plowrightia morbosa *Sacc.*
Urocystis Waldsteiniæ *Pk.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. E. G. Britton, New York, N. Y.

Ephemerum crassinervium *Hampe.*
Rhabdoweisia denticulata *B. & S.*
Dicranella heteromalla *Schp.*
Dicranum fulvum *Hook.*
D. flagellare *Hedw.*
D. longifolium *Hedw.*
D. viride *Schp.*
Dicranum fulvellum *Sm.*
D. Sauteri *Sch.*
Cynodontium gracilescens *Schp.*
C. virens *Schp.*
Dicranodontium longirostre *B. & S.*
Didymodon cylindricus *B. & S.*
Barbula tortuosa *W. & M.*

Trichostomum vaginans *Sulliv.*
Blindia acuta *B. & S.*
Ulota crispa *Brid.*
Grimmia conferta *Fnck.*
Racomitrium microcarpum *Brid.*
R. fasciculare *Brid.*
Anacamptodon splachnoides *Brid.*
Aulacomnium palustre *Schwægr.*
Anomodon apiculatus *B. & S.*
Homalia trichomanoides *B. & S.*
Neckera oligocarpa *B. & S.*
Eurhynchium strigosum *B. & S.*
Plagiothecium denticulatum *B. & S.*
Limnobium montanum *Wils.*
L. eugyrium *Schp.*
L. ochraceum *B. & S.*
Hypnum reptile *Mx.*
H. umbratum *Ehrh.*
H. strigosum *Hoffm.*
Rhynchostegium Jamesii *Sulliv.*

Mrs. P. H. Dudley, New York, N. Y.

Chondrus crispus *Lyng.*

Mrs. E. C. Anthony, Gouverneur, N. Y.

Rudbeckia hirta *L.*

Rev. J. L. Zabriskie, Flatbush, N. Y.

Nostoc sphæricum *Vauch.*
Vollutella stellata *Pk.*
Zygodesmus granulosus *Pk.*

George Green, Katonah, N. Y.

Cladosporium fulvum *Cke.*

S. M. Tracy, Agricultural College, Miss.

Cerebella Paspali *C. & M.*
C. Andropogonis *Ces.*
Cerebella Spartinæ *E. & E.*
Cercospora personata *B. & C.*

R. B. Hough, Lowville, N. Y.

Pinus inops *Ait.*

C. L. Shear, Alcove, N. Y.

Carex debilis *Mx.*
Solenia anomala *Pers.*
Haplosporella Symphoricarpi *Pk.*
Diatrype Hochelagæ *E. & E.*
Melanconis occulta *Sacc.*

Smith Ely Jeliffe, M. D., Brooklyn, N. Y.

Camarosporium metableticum *Trail.*
Amphisphæria umbrina *Wint.*

William Herbst, M. D.

Queletia mirabilis *Fr.*

N. Ringuenberg, M. D., Lockport, N. Y.

Asimina triloba *Dunal.*

L. H. Hoysradt, Pine Plains, N. Y.

Carex arcta *Boott.*
C. glabra *Boott.*
C. stenolepis *Torr.*
C. bullata *Schk.*
Lycopodium alopecuroides *L.*
L. Carolinianum *L.*
Asplenium viride *Huds.*

E. S. Miller, Floral Park, N. Y.

Potamogeton pulcher *Tuckm.*

B. D. Halsted, New Brunswick, N. J.

Exobasidium Peckii *Halst.*

W. R. Dudley, Palo Alto, Cal.

Hydnum subcarnaceum *Fr.*
Merulius irpicinus *Pk.*
M. tenuis *Pk.*
Lepidoderma fulvum *Mass.*
Polyporus versicolor *Fr.*
Penicillium candidum *Lk.*
Peziza Dudleyi *Pk.*
Gyromitra sphaerospora *Sacc.*
Dædalea unicolor *Fr.*

(C.)

SPECIES NOT BEFORE REPORTED.

Ranunculus hispidus *Mx.*

North Greenbush. May. This is included, in the New York State Flora, with *Ranunculus repens* as variety *Marilandicus*, but it is now regarded by good botanists as a distinct species. It is one of our earliest flowering buttercups.

Aster leiophyllus *Porter.*

Lake Mohonk and Shokan, Ulster county. Sept. This beautiful aster was at first described by Professor Porter under the name *Aster cordifolius* var. *lævigatus*, but having concluded that it is a distinct species, he has published it as such under the name here given. It certainly appears to me to be a good species easily distinguished from *A. cordifolius* both by the character of its leaves and of its flowers.

Senecio Robbinsii *Oakes.*

Rocky banks of Black river below Brownsville. June. This plant is *Senecio aureus* var. *Balsamitæ* of the Manual, but it has recently been raised to specific rank, a position which, in my opinion, it justly merits. According to Dr. Rusby's description, the typical form of the species is two to three feet high, glabrous, with the root leaves sharply and unequally serrate. In our specimens the root leaves are crenately serrate, the plants are one to two feet high and show a cotton-like tomentum at the insertion of the leaves and also, under a lens, a minute loose tomentum on the leaves and stems and at the base of the involucres. The peduncles originate at nearly the same point at the top of the stem, giving to the corymb an umbellate appearance. In consequence of these variations from the type I would designate our plant as var. *subtomentosus*. Unlike the typical form our plant grew in thin dry soil covering rocks. It was partly shaded by trees.

Hieracium Marianum *Willd.*

Highland lake, Sullivan county. July. Rare.

Polygonum Douglassii *Greene.*

Rocky summit of Cobble hill near Elizabethtown, Essex county. September.

This was formerly referred to *P. tenue*, but it is easily distinguished from that species by its drooping fruit.

Potamogeton Vaseyi *Robbins.*

Thompson's lake, Albany county. August. Dr. Morong finds it in Greenwood lake, Orange county.

In general appearance it resembles *P. diversifolius*, from which it is easily separated by its larger fruit with the middle keel rounded.

Potamogeton pulcher *Tuckm.*

Riverhead, Suffolk county. *E. S. Miller.* Rare.

Potamogeton major (*Fr.*) *Morong.*

Cayuga and Seneca lakes. August. This is *P. pusillus* of the State Flora where it is credited to Crooked lake on the authority of Dr. Sartwell. In the Manuals it stands as *P. pusillus* var. *major* and *P. mucronatus.* I follow Dr. Morong in considering it a good species and I have adopted the name under which he publishes it.

Carex glabra *Boott.*

Taberg, Oneida county, and Cooperstown Junction, Otsego county. June. In the Taberg station it was growing in the midst of a patch of *C. debilis.* Its heavier spikes and different appearance at once attracted attention.

Carex albursina *Sheldon.*

This plant has been considered a variety of *C. laxiflora* and is subjoined to that species as var. *latifolia* in the Manual. But it is so constant in its characters and so easily separated from all forms of *C. laxiflora*, by its broad bracts and short inconspicuous staminate spike that I can readily admit its claims to specific rank. We have it from the Helderberg mountains and from Sanfords Corners, Jefferson county. June.

Panicum miliaceum *L.*

Port Jervis and Albany. July. This millet has been introduced and is frequently found growing in waste places about cities and villages. Prof. Dudley reports it at Ithaca, and Dr. Howe at Lansingburgh and in various places in the valley of the lower Hudson.

Psathyrella tenera *n. sp.*

Pileus thin, campanulate, obtuse, moist or subhygrophanous reddish-cinereous when moist, paler when dry, slightly rugulose and atomate; lamellæ broad, adnate, plane or but slightly ascending, subdistant, at first pallid or subcinereous, then umber and finally blackish, white on the edge; stem slender, glabrous, stuffed or hollow, white, with a white floccose mycelium at the base; spores narrowly elliptical, .0005 to .00055 in. long, .0003 broad.

Pileus 3 to 5 lines broad; stem 1 to 1.5 in. long, scarcely half a line thick.

Damp mucky ground in open woods. Pierrepont Manor, Jefferson county. June.

This plant resembles small forms of *Galera tenera* in color and shape, but it is readily distinguished from that species by the darker color of the mature lamellæ and of the spores. The plant is much smaller than *P. gracilis* and *P. graciloides* to which it seems to be related.

Hydnum subcarnaceum *Fr.*

Decayed wood. Ithaca. *Prof. W. R. Dudley.*

Merulius irpicinus *n. sp.*

Resupinate, thin, soft, more or less tomentose beneath, whitish, the margin sometimes free or slightly reflexed; hymenium at first gyrose porose, the dissepiments at length prolonged into subulate or irpex-like teeth, subferruginous; spores subglobose or elliptical, colored, .0002 to .00028 in. long, .00016 to .0002 broad.

Decaying wood. Ithaca. October. *Dudley.*

This species resembles *M. lacrymans* in habit and color, but it is thinner and more fragile, with smaller pores and spores, and it is especially distinguished by the elongated or subulate teeth that project from the older parts of the hymenium. It is referable to the section Coniophori.

Merulius tenuis *n. sp.*

Resupinate, very thin, tender, reddish-brown inclining to liver color, the margin webby-tomentose, whitish; dissepiments narrow, irregular, forming shallow unequal pores; spores colored, .00035 to .0004 in. long, .00025 to .0003 broad.

Much decayed wood. Ithaca. *Dudley.*

The color of the dried specimens resembles that of Persoon's figure of *M. pulcher*, but the dissepiments and pores are different. This species also is referable to the section Coniophori.

Stereum populneum *n. sp.*

Resupinate, very thin, orbicular, often confluent in patches, minutely rimose, brown tinged with liver color, minutely whitish-punctate under a lens, the thin radiate-dentate margin a little paler, at length becoming more or less free; spores oblong, .0005 to .0006 in. long, .00016 broad.

Bark of prostrate trunks of poplar, *Populus tremuloides.* Adirondack mountains. August.

This is distinct from all allied species by its peculiar color, its minutely chinky and punctate hymenium and its subfree dentate margin.

It is related to *S. albobadium.*

Stereum ambiguum *n. sp.*

Resupinate, suborbicular or irregular, soon confluent in patches, one-half to one line thick, dry, subcorky but brittle, tawny-brown and subtomentose beneath; the hymenium tawny-brown becoming paler or grayish tawny with age, rimose when mature, with a faintly pulverulent or pruinose-velvety appearance; the margin yellowish, generally becoming free; spores oblong or subfusiform, .0005 to .0007 in. long, .0002 broad.

Wood and bark of prostrate trunks of spruce, *Picea nigra* Adirondack mountains. June.

This singular species is apparently related to *Stereum abietinum*, to which it was formerly referred, but from which it was seen to be distinct when the spore characters of that species were published.

The thick interior stratum is similar in color to the hymenium and appears to be composed of densely compacted erect fibrils. The hymenium, under a lens, is seen to possess both setæ and metuloids, thus combining the characters of the genera Hymenochæte and Peniophora, and obliterating the distinction of these as *Dædalea confragosa*, in its various forms, destroys the distinction between Trametes and Lenzites. Moreover when these setæ and metuloids are more highly magnified they are found to vary among themselves, being sometimes smooth and sometimes warted, acute or blunt, colored or colorless, and sometimes even partly colored and smooth and partly colorless and warted.

Also the hymenium, though dry and firm in texture, becomes rimose as in many of the species of Corticium with a soft and waxy hymenium.

Lepidoderma fulvum *Mass.*

Decayed wood. Ithaca. *Dudley.*

This is a small form scarcely one line high. The scales of the peridium are white, the few large spores intermingled with those of the prevailing size are .0007 to .0008 in. broad, and the slender threads of the capillitium are sometimes furnished with thickenings as in those of *L. tigrinum.* The plants grow either singly or in groups of three to five.

Æcidium Actææ *Opiz.*

Living leaves of baneberry, *Actæa spicata* v. *rubra.* Adams, Jefferson county. June.

Phoma enteroleuca *Sacc.*

Decorticated branches of apple tree. Bethlehem, Albany county. May.

Our specimens differ from the typical form in growing on decorticated branches and in having the spores slightly broader.

Cytospora ambiens *Sacc.*

Dead stems of raspberry, *Rubus strigosus.* Menands, Albany county. April.

Cytospora carbonacea *Fr.*

Dead branches of elm, *Ulmus Americana.* Elizabethtown. May.

The mass of ejected spores is black when dry.

Septomyxa persicina (*Fres*) *Sacc.*

Rind of squashes. Menands. January.

Var. **nigricans** *n. var.* Forming large irregular black patches; heaps minute; spores oblong, rounded at each end, more or less narrowed in the middle, often two to four-nucleate, colorless, .0003 to .0005 in. long, .00012 to .00016 broad, oozing out and forming a pale wine-colored or peach-colored tendril or mass.

Discosia magna *n. sp.*

Perithecia gregarious, suborbicular, large, .014 to .024 in. broad, black, opaque, even or obsoletely rugulose, ostiolate, rarely confluent; spores oblong-fusoid, curved, obscurely two to three-septate, .0005 to .0008 in. long, the bristle at each end .0004 to .0005 in. long.

Fallen fruit of ash, *Fraxinus Americana.* Elizabethtown. May.

The species is easily known by its large opaque perithecia and simple or obscurely septate spores.

Septoria Pisi. *West.*

Living pea leaves. Adirondack mountains. August.

Septoria Scutellariæ *Thum.*

Living leaves of scull-cap, *Scutellaria galericulata.* Adirondack mountains. July.

Septoria conspicua *E. & M.*

Living leaves of fringed loosestrife, *Steironema ciliatum.* Long Island. July.

Haplosporella Symphoricarpi *n. sp.*

Stroma small .02 to .06 in. broad, often confluent, erumpent, suborbicular, closely surrounded by the ruptured remains of the epidermis, black, the upper surface plane or slightly convex, dotted by the slightly prominent ostiola; spores oblong, colored, continuous, .0006 to .0008 in. long, .0003 broad.

Dead stems of snowberry, *Symphoricarpus racemosus.* Alcove, Albany county. March. *C. L. Shear.*

Rhabdospora rhoina *n. sp.*

Perithecia numerous, sunk in the bark, covered by the slightly pustulated epidermis; spores subfiliform, slender, curved, .0005 to .0006 in. long, oozing out and forming slender yellowish or pallid tendrils.

Dead branches of sumac, *Rhus typhina.* Cooperstown Junction. June.

Volutella stellata *n. sp.*

Sporodochia minute, sometimes confluent in irregular masses which are one to two lines long, covered by the mostly stellately branched brownish-tawny setæ; spores globose or subelliptical, .00016 to .0002 in. long.

Much decayed wood of chestnut. Flatbush. September. *Rev. J. L. Zabriskie.*

This is a peculiar and somewhat aberrant species but it appears to be connected with normal forms by *V. ochracea.* The setæ are variable in length and in ramification. Some are simply dichotomous, others are stellate below and dichotomous above.

Epicoccum nigrum *Lk.*

Dead stems of blackberry lily, *Balamcanda Chinensis.* Menands. May.

Penicillium candidum *Lk.*

On mushrooms, *Agaricus campester*, in a greenhouse. Ithaca. *Dudley.*

Var. *subcandidum.* Fertile hyphæ irregularly branched above, the color at first white, then whitish or cinereous.

Cercospora tenuis *n. sp.*

Spots large, sometimes discoloring the whole leaf, reddish brown; hyphæ fasciculate, short, .0016 in. long, .00016 broad, colored, obscurely septate, the tufts appearing like minute black dots on the upper surface of the leaf; spores very slender, gradually tapering to the apex, continuous or with one to three septa, hyaline, .0016 to .0024 in. long.

Living leaves of hairy bedstraw, *Galium pilosum.* Riverhead. July.

The species is quite distinct from *C. Galii.*

Cladosporium episphærium *Schw.*

On *Daldinia concentrica.* Elizabethtown. May.

Zygodesmus granulosus *Pk.*

Decayed wood of chestnut. Flatbush. August. *Zabriskie.*

Peronospora Hydrophylli *Waite.*

Living leaves of Virginian waterleaf, *Hydrophyllum Virginicum.* Bergen, Genesee county. June.

Peziza Dudleyi *n. sp.*

Cups irregular, one to two inches broad, sessile, externally with a minute appressed white tomentum; hymenium bright yellow inclining to saffron or orange, often rimulose; asci cylindrical; spores oblong, even, binucleate, somewhat granular within, .001 to .0012 in. long, .0005 to .0006 broad; paraphyses filiform, slightly thickened at the tips.

Ground and decayed wood. Ithaca. October. *Dudley.*

This fungus appears to be related to such species as *P. aurantia* and *P. inæqualis*, from both of which it is at once distinguished by its yellow hymenium and larger spores.

Exoascus Potentillæ *Sacc.*

Living leaves of cinquefoil, *Potentilla Canadensis.* Cooperstown Junction. June. Middle Grove. July.

This fungus produces greenish yellow spots on the leaves. These spots are usually convex above, concave below.

Diatrype albopruinosa *Schw.*

Dead branches of oak, maple, hop hornbean, etc. Albany and Rensselaer counties.

Diatrype Hochelagæ *E. & E.*

Decayed wood. Alcove. January. *Shear.*

Sphærella Chimaphilæ *n. sp.*

Perithecia minute, .0025 to .003 in. broad, numerous, mostly hypophyllous, seated on indefinite blackish spots or occupying the whole surface of the leaf; asci subcylindrical, .0016 to .002 in. long; spores crowded in the ascus, subclavate, colorless, .0005 to .0006 in. long, .00016 broad.

Dead and fallen leaves of Princes Pine, *Chimaphila umbellata.* Cooperstown Junction. June. The septum of the spore is obscure.

Diaporthe decedens *Fr.*

Dead stems of hazelnut. Elizabethtown. May.

Massariella Curreyi *Tul.*

Dead branches of basswood, *Tilia Americana.* Selkirk, Albany county. June.

Our specimens are not typical, but may be called Var. *Americana.* Asci very variable in length, .007 to .009 in. long; spores .0016 to .002 in. long; .0005 to .0006 broad.

Melanconis occulta (*Fckl.*) *Sacc.*

Dead branches of poplar. Alcove. *Shear.*

The following species and varieties are described from extralimital specimens sent to me for identification and are not known to belong to our State Flora.

Clavaria Macouni *n. sp.*

Clubs single or clustered, 6 to 10 lines high, obtuse or subacute, dingy greenish-yellow or pale cinereous; spores minute, elliptical, .0002 in. long, .00012 broad.

Among mosses under cedar trees. Canada. September. *Macoun.*

The species belongs to the section Syncoryne.

Clavaria muscoides *L.* var. **obtusa** *n. var.*

Tips of the ultimate branches obtuse. Otherwise like the type. Under cedar trees. Canada. September. *Macoun.*

Hypochnus subviolaceus *n. sp.*

Effused, very thin, floccose-membranaceous, adnate, violet-gray, whitish on the margin; spores subglobose, nearly hyaline, .0002 to .00024 in. broad.

Dead decorticated wood. Canada. September. *Macoun.*

Leptothyrium Spartinæ *n. sp.*

Perithecia minute, depressed, suborbicular elliptical or oblong, sometimes subconfluent in series, rugulose, black, brownish on the margin, easily separable from the matrix; spores narrowly elliptical, subacute, hyaline, .0005 to .0006 in. long, .0002 to .0003 broad, usually containing a single large nucleus, adorned with a filiform appendage at each end.

Dead stems of *Spartina juncea.* Biloxi, Mississippi. September. Number 1835. *S. M. Tracy.*

This is a very distinct species and one that departs from the usual characters of the members of the genus, in its large spores and their filiform appendages. These are sometimes longer than the spore itself. The thin margins of the perithecia have a radiate structure.

Ceratium hydnoides *A. & S.* var. **ramosissimum** *n. var.*

Stromata very numerous, forming patches and dividing above into exceedingly numerous slender snow-white branches which interlace with each other and with those of neighboring stromata and thus form continuous masses.

Var. **subreticulatum** *n. var.* Stromata creeping or ascending, pure white, sparingly branched and uniting with each other in a somewhat reticulate manner.

Both varieties grow on soft much decayed wood. They have a very different appearance but the character of the spores is the same in both and indicates a merely varietal difference.

Canada. *Macoun.*

Zygodesmus tenuissimus *n. sp.*

Effused, pulverulent, very thin, yellowish-gray or subcinereous, the concolorous margin indefinite; the hyphæ short, septate, equalling or exceeding the spore in diameter; spores globose, spinulose, slightly colored, .0003 in. broad.

Decayed wood. Canada. September. *Macoun.*

The species appears to be related to *Z. marginatus* from which it is separable by its thin pulverulent character, short hyphæ and concolorous indefinite margin.

Asterula Tracyi *n. sp.*

Subiculum thin, hypophyllous, composed of slender flexuous septate colored filaments about .00016 in. thick; perithecia very minute, .004 to .005 in. broad, hemispherical or depressed, subastomous, black; asci oblong-clavate, .0011 to .0014 in. long, .0003 to .0004 broad; spores oblong, slightly narrowed toward one end, obscurely 2-to 4-nucleate, colorless, .0003 to .0004 in. long, .00012 to 00015 broad.

Living or languishing leaves of *Spermacoce parviflora.* Biloxi, Miss. August. Number 1842. *Tracy.*

Melogramma effusum *n. sp.*

Stroma effused, thin, superficial, black; perithecia minute, carbonaceous, crowded, convex, opaque, black, white within; asci subcylindrical; spores subfusiform, generally slightly curved, colorless, triseptate, .0008 to .0011 in. long, .00016 to .0002 broad, the second cell usually swollen.

Decayed wood. Canada. *Macoun.*

This species does not harmonize well with the character of the genus to which it is here referred, for the spores in this genus are typically colored. The colorless spores indicate relationship to the genus Zignoella, but the presence of a stroma, which with the perithecia forms a thin rugose carbonaceous crust, shows its relationship to the genus Melogramma and forbids its reference to Zignoella.

Stereum balsameum *Pk.* form **reflexum.**

Pileus coriaceous, firm when dry, villose-tomentose, obscurely zonate; hymenium smoky-purplish, changing to red where wounded.

Canada. *Macoun.*

(D.)

REMARKS AND OBSERVATIONS.

Anemone Virginiana *L.* var. alba *Wood.*

This variety is common in the hilly parts of Sullivan county, where it is the prevailing form. It sometimes forms patches of considerable extent. It does not, so far as I have seen, mingle with the typical form and I am disposed to think that it is a good variety.

Ranunculus circinatus *Sibth.*

Fine specimens of this water crowfoot were obtained in Cayuga lake. The peduncles become deflexed or curved downwards in fruit.

Silene stellata *Ait.*

A form of this plant occurs near Narrowsburg, Sullivan county, in which all the leaves, or all except those of a single whorl, are opposite. It is not uncommon to find a few of the uppermost and of the lowest ones opposite, but this form is apparently rare. Another form has the leaves beautifully crisped or undulate on the margin.

Prunus Americana *Marsh.*

The flowers of this native plum are usually white. A form occurs near Meadowdale, Albany county, and near Westport Essex county, in which they have the rosy hue of peach blossoms. It might be called variety *rosea.*

Rubus Canadensis *L.*

This low blackberry or dewberry is capable of adapting itself to a great variety of soils and circumstances. These sometimes affect its mode of growth. Plants were found growing among bushes in low swampy ground near Pine Plains, Dutchess county, in which the stem was quite as erect as in *Rubus villosus.* I have indicated in a previous report that whenever, through poverty of soil or for other reasons the prickly stemmed species of Rubus are unable to develop fully or grow freely this starved condition is shown by the failure of the prickles. The same thing has been observed to be the result of an attack of raspberry rust, *Cæoma nitens*, both in the dewberry and the blackberry. Plants badly infested by this rust are generally destitute of prickles.

Rubus setosus *Bigel.*

This northern species occurs in the open region known as "The Plains." This is in the southern part of St. Lawrence county near the headwaters of the Oswegatchie river.

Agrimonia parviflora *Ait.*

Pine Plains. The plants were not yet in flower early in August.

Rosa blanda *Ait.*

The variability of our native roses is the source of considerable difficulty and perplexity in their classification. In the last edition of the Manual this species is said to have no infrastipular spines, yet in a specimen collected at Cooperstown Junction these are plainly present. The stipules are described as dilated, but in another specimen from the same locality, they are very narrow. The fruit is described as globose, but in specimens collected at Thompson's lake, the fruit is pointed at the base and somewhat pyriform. In these specimens also the stipules are very narrow, even on young shoots.

Ribes Grossularia *L.*

Bethlehem. May. An introduced species and escaped from cultivation.

Saxifraga aizoides *L.*

Nearly thirty years ago this plant and its companion, *Primula Mistassinica*, were discovered by Rev. J. A. Paine on the wet and dripping precipices that lie along Fish creek, above Taberg. Both these plants are still abundant in that locality, and the nature of the place is such that nothing but the greed of botanists is likely soon to exterminate them. The yellow saxifrage is especially luxuriant, and often exceeds the dimensions attributed to it in the Manual. It is in flower when the primula is developing its fruit.

Drosera rotundifolia *L.*

This pretty little sundew is common in the Adirondack region. A favorite habitat of it is on decaying trunks of trees lying in the water of lakes and ponds.

Solidago uliginosa *Nutt.*

This pretty goldenrod is common in the Adirondack region. It usually inhabits bogs, marshes or wet places, but sometimes it is found growing in dry soil. It grows in such soil on "The Plains" and on the banks of the upper Oswegatchie river.

Solidago juncea *Ait.*

Though described in the Manual as "smooth throughout," a form occurs on the Helderberg mountains in which the stem and branches are distinctly, though somewhat sparsely, hairy. This is the earliest in flower of the goldenrods about Albany.

Solidago Canadensis *L.*

A form is common on "The Plains" in which the stem is but slightly hairy and the leaves are nearly smooth. They are either sharply serrate or almost entire. This form makes a close approach to *S. serotina.*

Aster nemoralis *Ait.*

Several years ago a single specimen of this neat little aster was brought me by Judge Addison Brown, of New York, who collected it near Hitchings Pond. Recently, fine specimens were collected by myself on the marshy borders of one of the "Five Ponds" in the northern part of Herkimer county. The heads of flowers are large for the size of the plant and vary in number from one to seven in the specimens collected. There was also found on the rocky shore of this pond, near its outlet, a patch of a much larger form of this aster, for which I propose the name variety *major.* Stem one and a half to two feet high; heads of flowers, ten to thirty; leaves larger, two and a half to three inches long, five to seven lines broad, distantly dentate-serrate.

This variety grows in patches, but the typical form, so far as I have observed it, is scattered. In both forms the lower surface of the leaves is minutely resinous or glandular-puberulent, although this character is not noticed in the description of the Manual. The plants in press stick slightly to the drying papers because of this character. This aster occurs also in a marsh near Jayville. It appears thus far to be limited in its range to the northwestern part of the Adirondack region.

Rudbeckia hirta *L.*

A form with the lower half of the rays of a beautiful brown color occurs near Middle Grove. Mrs. Anthony sends the same form from Gouverneur.

Erigeron Philadelphicus *L.*

This handsome fleabane often grows from the crevices of wet shaded or dripping cliffs.

Tragopogon pratensis *L.*

The goatsbeard has been introduced into this country from Europe and is becoming more common each year. It is already beginning to assert itself as a troublesome weed, and those interested should carefully guard their fields and prevent its obtaining a foothold in them. It closely resembles the oyster plant, which sometimes escapes from cultivation, but which seems to be much less common and aggressive. The oyster plant has purple flowers, the goatsbeard, yellow flowers.

Hieracium præaltum *Vill.*

This troublesome weed is gradually extending its range southward. It was observed the past summer at Pierrepont Manor. It has also followed the Carthage and Adirondack railroad eastward and is now found at Jayville. It would be well if farmers would make a special effort to keep this weed in check and also its near relative, the orange hawkweed, *Hieracium aurantiacum.* They are similar in habit and appearance, but one has a yellow flower, the other an orange or reddish blossom. This one is known in some localities as "red daisy." Both form dense patches and spread readily by seed which is easily wafted by the wind by reason of the cottony plumes.

Rhododendron viscosum *Torr.*

This beautiful azalea is abundant about Highland lake, Sullivan county. A single plant was found in which the flowers were as bright and rosy as those of *Rhododendron nudiflorum.* Nearly all the plants have white flowers.

Rhododendron maximum *L.*

This showy shrub grows in great profusion about Barryville and in other places in Sullivan county. The spots in the upper side of the corolla are described as yellow, reddish or orange, but in the Sullivan county plants they appear to me to be constantly green. It may be designated form *viridimaculatum.*

Lysimachia nummularia *L.*

Near Brewerton, Onondaga county, the moneywort has become so well established that it forms extensive carpets over the ground and extends for a considerable distance in the damp woods that skirt the outlet of Oneida lake.

Lysimachia quadrifolia *L.*

At Highland lake a form occurs in which the petals are tipped or margined with orange. The leaves are commonly in whorls of five or six. I have labeled it variety *variegata*, though perhaps it should be considered a form, rather than a variety.

Lysimachia stricta *Ait.*

This loosestrife is very variable. In a small swale near Narrowsburg five forms or varieties of it were collected. The typical form has the leaves lanceolate, opposite and acute at both ends and a rather long and closely flowered raceme with minute subulate inconspicuous bracts. Two varieties have been designated ; one, var. *producta*, which has a long loose raceme with conspicuous foliaceous bracts ; the other, var. *angustifolia*, which has the leaves narrowly lanceolate or linear and only one or two lines broad, the raceme being rather few flowered.

In the locality mentioned, the typical form, the variety *producta*, a form near var. *angustifolia* and a ternately leaved form of the first two were found growing together and apparently under the same conditions. What should cause these variations?

The narrow leaved form differs from variety *angustifolia* in having the leaves two to three lines broad, instead of one or two lines, and the raceme with numerous flowers. It is therefore intermediate between variety *angustifolia* and the typical form. I call it form *intermedia.*

Commonly the leaves in the typical form are two inches or more in length, but there is a form in which they are less than two inches long. In these short leaved forms the raceme and the pedicels are generally shorter than in the type and the leaves are somewhat blunt at the apex. This might be called form *brevifolia.* The form which bears bulblets in the axils of the leaves and which is generally without flowers might be designated as form *bulbifera.* All of these forms and varieties may have the stem either simple or branched. All of them except variety *angustifolia*, which is found in the Southern States, occur in our State.

The following synopsis will show at a glance the distinctive features here noticed.

	Flowers in a loose raceme, bracts subulate, inconspicuous	1
	Flowers in a loose raceme, bracts foliaceous, conspicuous	Var. producta
	Flowers usually wanting, bulblets in the axils of the leaves	Form *bulbifera*
1	Leaves lanceolate	2
1	Leaves narrowly lanceolate or linear	3
2	Leaves two inches or more in length. (L. stricta).	Form *typica*
2	Leaves less than two inches in length	Form *brevifolia*
3	Leaves one to two lines broad, raceme few flowered,	Var. angustifolia
3	Leaves two to three lines broad, raceme many flowered	Form *intermedia*

Steironema lanceolatum *Gr.*

Port Jervis. July. In the Flora of North America the leaves of this species are said to be "an inch or two long." In all the specimens that I have seen they are longer than this, averaging about three inches.

Campanula aparinoides *Pursh.*

Highland lake. A form with pale blue flowers.

Apocynum androsæmifolium *L.*

Narrowsburg. July. A form *pauciflora*, with flowers smaller and whiter than usual. I do not find this form mentioned in our botanies.

Apocynum cannabinum *L.*

The Indian hemp is very abundant along the Delaware river at Port Jervis and at Narrowsburg. It is often procumbent or spreading in its mode of growth.

Var. *hypericifolium* was collected at Narrowsburg.

Asclepias tuberosa *L.*

Port Jervis. The form with yellow flowers.

Mimulus moschatus *Dougl.*

This plant is native in the Pacific coast States and has probably been introduced here because of its musk-like odor. It was found in a bog near Locust Grove, Long Island, in 1886, by J. A. Bixby. In 1891 it was discovered in a swampy locality near Middle Grove, Saratoga county by Rev. J. H. Wibbe. It still exists in this station and is apparently permanently established. It was also reported to me as being well established in two other stations in Saratoga county; one on the farm of T. H. Fulier, two miles southwest of Middle Grove, and the other on the farm of Robert Morris near Greenfield Center.

Utricularia vulgaris *L.*

This bladder wort makes a luxuriant growth in Cayuga lake. Specimens were obtained there having scapes nearly two feet long and 12 to 16 flowered.

Blephilia hirsuta *Benth.*

Taberg. June. A form with white flowers.

Rumex Patientia *L.*

Pierrepont Manor and Middle Grove. A form of this species with leaves closely resembling those of the yellow dock, *R. crispus*, is becoming quite common. Its whitish root more dense panicles and the larger nearly grainless valves of the fruit easily distinguish it. I have not seen the form described in the Manual, and credited with root leaves two to three feet long.

Larix Americana *Mx.*

On the shore of Highland lake an interesting tree of this sdecies was observed. All the cones on the tree had the edges of the cone scales incurved in such a way as to give to each scale a globular shape and to expose to view the bracts of the cone. The cone itself presented an appearance which might be compared to a mulberry or blackberry with very large drupelets. Other trees standing near had cones on them of the usual form. There was no appearance of injury to the cones by insects nor by any other agencies. While this may not be a permanent variety, perhaps a mere sport only, for the sake of convenience I designate it as variety *incurva.*

Picea alba *Lk.*

The white spruce is much less frequent in the Adirondack region than the black spruce. I have observed it in Essex county only. It is a handsome tree though generally of small size, branching nearly or quite to the base, and consequently not of much value for timber. There is, however, a large tree on the northern slope of Raven hill, standing near the road between Elizabethtown and Wadhams Mills. It is about two feet in diameter at the base but its branches extend nearly to the ground. The resemblance between the white spruce and some forms of the black spruce is so close that it is not always easy for an unskilled person to separate them. The descriptions of these trees, as given in the Manual, indicate but a part of their distinctive features, and the characters there ascribed to the edges of the cone scales do not in all cases hold good. Having compared these trees at flowering time the following characters seem to me to be the most available ones for distinguishing them.

WHITE SPRUCE.	BLACK SPRUCE.
Young branchlets glabrous. Leaves six to eight lines long. Cones oblong or cylindrical, deciduous before next flowering time. Sterile aments pale, supported on slender whitish pedicels exserted from the basal cup of scales. Fertile aments eight to ten lines long. Young leaves visible at flowering time.	Young branchlets pubescent. Leaves four to seven lines long. Cones ovate or oblong, still on the tree at next flowering time. Sterile aments tinged with red, sessile in the basal cup of scales. Fertile aments five to six lines long. Young leaves not yet visible at flowering time.

These trees are in flower at the same time in the same locality. They were in bloom the past season in the vicinity of Elizabethtown the last week in May.

Microstylis monophyllos *Lindl.*

Up to this time, fruiting specimens only have represented this very rare and delicate little orchidaceous plant in the State Herbarium. Two flowering specimens were found in June near Taberg.

Clintonia borealis *Raf.*

Form *lateralis.* Like the typical form except in having a lateral umbel or two on the side of the scape. These lateral umbels consist of two to five flowers and are usually two or three inches apart. Commonly there is but one, which is one and a half to three inches below the terminal one. When there are two the lower one has fewer flowers than the upper, and this always has fewer than the terminal one. In one specimen there are seven terminal flowers and five in the lateral umbel below them.

I do not deem this a variety, but a mere form which grows intermingled with the typical form. I have observed it in several places in the Adirondack region, where it is not rare, and also near Cooperstown Junction. It seems singular that such an interesting form has not yet been noticed in any of our botanies. It was first recorded by me in the Fortieth Report, p. 73.

Juncus militaris *Bigel.*

Highland lake. July. The plants are plentiful along the shore of the lake, between Myers House and Sand beach. The descriptive character, "rather contracted panicle," given in the Manual, does not apply well to these plants, for they have the panicle large and loose. It is generally about four inches long and nearly as broad. In many of the plants the stem is rather abruptly bent about midway between the insertion of the long leaf and the panicle, or at the place of the large bract-like sheathing base of an abortive upper leaf. Probably this abrupt flexure has suggested the common name "bayonet rush," which is sometimes applied to the plant, and perhaps, also, the specific name "militaris." Nevertheless no notice is taken of this very noticeable character in the description given in the Manual.

Typha angustifolia *L.*

Professor Dudley has described a variety of *Typha latifolia*, under the name *elongata*. In it both the leaves and spikes are elongated, the former being "2 to 3½ meters" long, the latter "often 30 centimeters."

A similar variety of *Typha angustifolia* is found along the shore of Cayuga lake, between the railroad bridge and the outlet. In it the fertile part of the spike is eight to ten inches long. It may be designated var. *longispicata*, though I suspect it is merely a luxuriant development of the common form.

Pontederia cordata *L.*

Specimens of this plant were collected in Highland lake in which the fibrous roots had a beautiful purple color. Var. *angustifolia* Torr. occurs here; also in Stissing pond, Dutchess county.

Potamogeton Nuttallii *Ch. & Sch.*

A form of this species was collected in the upper waters of the Oswegatchie river near Sternbergs, in which the stem branches freely, and the leaves are unusually narrow. It is here characterized as var. *ramosus*. Stem slender, branched; floating leaves with blades 1.5 to 2.5 in. long, 3 to 6 lines broad; submerged leaves 1 to 2 lines broad. The name *P. Pennsylvanicus* Cham. is applied to this species in the Manual. I have followed Dr. Morong in nomenclature.

Potamogeton amplifolius *Tuckm.*

This is one of our most common species. It occurs in all parts of the State, in still or flowing, shallow or deep, soft or hard, warm or cold water. In deep water it is destitute of floating leaves. In Thompson's lake it skirts the whole western and a part of the eastern shore in water four to six or eight feet deep, and is always destitute of floating leaves. The foliage generally has a rufous tint. It seems to avoid more shallow water. The same form occurs in Warner's lake and behaves the same way.

Potamogeton lonchites *Tuckm.*

Specimens were collected in and near the outlet of Seneca lake in which, though in flower, the floating leaves were wanting or but little different in texture size and shape from the submerged leaves.

Potamogeton heterophyllus *Schreb.*

Specimens referable to form *longipedunculatus* Morong were collected near the outlet of Seneca lake.

Potamogeton lucens *L.*

This species occurs in Oneida and Cayuga lakes. The var. *Connecticutensis* Robbins was collected in Stissing pond near Pine Plains. This is the only station recorded for it in our State.

Potamogeton filiformis *Pers.*

Cedar lake, Herkimer county. July. This is *P. marinus* of the Manual. It is scarcely separable, in some of its forms, from *P. pectinatus* in the absence of fruit, and it has probably been often confused with that species.

Potamogeton pectinatus *L.*

A form of this species is abundant in Warners lake, Albany county, in which the peduncle is whitish and 8 to 12 inches long.

In the N. Y. State Flora nine species of Potamogeton are recorded. The number of species now known to belong to the State is twenty-seven, all of which, except *P. lateralis*, are represented in the Herbarium.

The following is a list of the names of the species, varieties and forms as given in the Monograph of Dr. Morong and in the Manual:

MORONG'S MONOGRAPH.

Potamogeton natans *L.*
P. Oakesianus *Robbins.*
P. Nuttallii *C. & S.*
P. amplifolius *Tuckm.*
P. pulcher *Tuckm.*
P. alpinus *Balb.*
P. lonchites *Tuckm.*
  Var. Noveboracensis *Morong.*
P. heterophyllus *Schreb.*
  Form graminifolius (*Fr.*) *Morong.*
  Form longipedunculatus (*Merat*) *Morong.*
  Form maximus *Morong.*
P. angustifolius *B. & P.*

Potamogeton lucens *L.*
  Var. Connecticutensis *Robbins.*
P. prælongus *Wulf.*
P. perfoliatus *L.*
  Var. Richardsonii *Bennett.*
P. confervoides *Reichb.*
P. crispus *L.*
P. zosteræfolius *Schum.*
P. obtusifolius *M. & K.*
P. Hillii *Morong.*
P. foliosus *Raf.*
  Var. Niagarensis (*Tuckm.*) *Gray.*
P. pusillus *L.*

Potamogeton major (*Fr.*) *Morong*.
P. Vaseyi *Robbins*.
P. lateralis *Morong*.
P. diversifolius *Raf*.

Potamogeton Spirillus *Tuckm.*
P. filiformis *Pers.*
P. pectinatus *L.*
P. Robinsii *Oakes*.

Gray's Manual.

Potamogeton natans *L.*
P. Oakesianus *Robbins*.
P. Pennsylvanicus *Cham.*
P. amplifolius *Tuckm.*
P. pulcher *Tuckm.*
P. rufescens *Schrad.*
P. fluitans *Roth.*
P. heterophyllus *Schreb.*
Var. graminifolius (*Fr.*)
P. Zizii *M. & K.*
P. lucens *L.*
Var. Connecticutensis. *Robbins*.
P. prælongus *Wulf.*

Potamogeton perfoliatus *L.*
Var. lanceolatus *Robbins*.
P. Tuckermani *Robbins*.
P. crispus *L.*
P. zosteræfolius *Schum.*
P. obtusifolius *M. & K.*
P. Hillii *Morong*.
P. pauciflorus *Pursh*.
Var. Niagarensis *Gray*.
P. pusillus *L.*
P mucronatus *Schrad.*
P. Vaseyi Robbins.
P. lateralis *Morong*.
P. hybridus *Mx.*
P. Spirillus *Tuckm.*
P. marinus *L.*
P. pectinatus *L.*
P. Robbinsii *Oakes*.

Eriophorum lineatum *B. & H.*

Low moist ground near Middle Grove. July.

Carex trisperma *Dewey*.

A form with the leaves more narrow than usual was collected on the boggy shore of Highland lake.

Carex retroflexa *Muhl.*

In the Manual, this sedge is subjoined to *C. rosea* as a variety. It differs considerably from that species in its range as well as in its appearance and characters. I do not find it at all in the northern and northeastern counties of the State, but it is not rare in some of the southern and western counties. *C. rosea* is common everywhere except perhaps in the coldest mountain regions.

Carex rosea *Schk.* var. staminata *n. var.*

Culms very slender but erect or nearly so 12 to 20 inches high, much surpassing the very narrow leaves; spikes commonly 4, distant, each terminated by a conspicuous staminate part subtended by 1 to 6 perigynia, or sometimes one or more wholly staminate, the lowest one either with or without an exceedingly slender setaceous bract; perigynia either horizontally spreading or conspicuously deflexed. Cooperstown Junction. June.

This plant seems to approach variety *Texensis* but it differs in its distant spikes, deflexed perigynia and conspicuous staminate flowers.

Carex æstivalis *Curt.*

This rare sedge is plentiful on the high wooded hills near East Worcester. It grows both in the woods and in open places by the roadside.

Carex retrocurva *Dew.*

This is *C. laxiculmis* Schw, in the Manual. It has a form *serotina*, in which the new growth of the season, after the usual fruiting time, sends up short culms and produces another crop of fruit. In this case the pedicels are rather short and erect and the spikes are few flowered. Taberg and Helderberg mountains.

Carex debilis *Mx.*

A variety *interjecta* Bailey in litt. to C. L. Shear, was discovered by Mr. Shear near Alcove, Albany county, and has since been found by myself near Pierrepont Manor, Jefferson county. It fruits in June. It differs from the ordinary form in its shorter perigynia, which by being loosely arranged on the rachis often give a moniliform appearance to the fertile spikes. The staminate spike usually has 2 to 4 perigynia a short distance below its apex. Sometimes the fertile spikes are also conspicuously staminate at the apex, and occasionally one has a short branch at its base.

Var. *strictior* Bailey. A form of this variety, having culms 12 to 18 inches high and yellowish green foliage, occurs near East Worcester. June. The broad leaves overtop the culms and the spikes are noticeably erect.

Carex Œderi *Ehrh.*

This sedge was found growing with *C. flava* on the shores of Thompson's lake, Albany county. The two were so markedly different in appearance that it is very unsatisfactory to me to make the former a variety of the latter, as is done by some botanists.

Carex Emmonsii *Dew.* var. **elliptica** *Boott.*

In the Eighteenth Report on the State Cabinet of Natural History, p. 155, the characters of this sedge are published. It is described as having the spikes crowded; the perigynia rather long ($1\frac{6}{10}$–$\frac{8}{10}$ of a line long, $\frac{6}{10}$ broad), hirsute, nearly twice the length of the scale; achenium elliptical-triquetrous ($1\frac{1}{10}$ of a line long, $\frac{1}{2}$ a line broad), style deciduous at the base. New York, *Knieskern.*

The variety has a longer body to the perigynium and a longer achenium, and the pubescence is softer and longer, and the proportionate length of the perigynium to the squamæ gives a peculiar aspect to the spike. It has not been noticed by authors: *F. Boott.* Penn Yan; Rochester, *Dewey.*

This sedge has not to this day been properly recognized in the Manual.

Dr. E. C. Howe, who has made a special study of carices and to whom specimens of this plant were sent for examination, considers it a good species, and has sent the following description of it under the name

Carex Peckii *nov. sp.*

Stems 3 to 16 inches high, culm leaves 2 to 5, very short, narrow, radical leaves 3 to 10 inches long, about one line broad; staminate spike small, sometimes inconspicuous; fertile spikes 2 to 3, aggregated, the two uppermost 3 to 8-flowered, the lowest 2 to 6, bracteate; perigynia 1.5 to nearly 2 lines long, about half as wide, elliptical-triquetrous, prominently beaked, strongly hirsute, longer than the ovate acute or acutish-mucronate scarious margined scale, long and tapering at the base; scales centrally green, the sides tinged with brown or purplish-brown; achenia triquetrous-elliptical, strongly 3-ribbed, prominently stipitate, 1 line or more long.

Helderberg mountains, Albany county; Brownville, Jefferson county; Elizabethtown, Essex county. Also collected by the late Professor Dewey in Yates and Monroe counties, and elsewhere in New York by the late Dr. Knieskern.

The largest specimens were collected at Brownville, the smallest near Elizabethtown. The plants grow in thin woods or their borders or where they are partly shaded by trees. The specimens were collected in June. Doctor Howe considers the species related to *Carex deflexa* rather than to *C. Emmonsii.* Both its peculiar appearance and its distinctive spikes and fruit lead me also to think it is a valid species.

Carex Houghtonii *Torr.*

Near Elizabethtown. May. This rare species has been observed in several places by Prof. Burt and myself in Saratoga and Essex counties, but I am not aware of its occurrence elsewhere in the State. It is an early flowering species, and delights in light sandy soil, through which it extends its creeping rootstocks.

Carex utriculata *Boott.*

A small form of this species is found in the Adirondack region. Its spikes are scarcely more than an inch long, being smaller even than those of variety *minor.*

Setaria viridis *Bv.*

The form of this grass noticed in the Thirty-fourth Report, p. 56, still persists about Albany and in its streets and yards. The same or a similar form is said, by Dr. Vasey in his Monograph of the Grasses of the United States and Canada, p. 38, to occur in the South. It is easily distinguished from the ordinary form of the species, and appears to be very constant in its characters. I have labeled our specimens Var. *purpurascens*, and the grass has been published and essentially characterized under this name by Prof. Dudley in his Catalogue of Cayuga plants, p. 122. Its spike-like panicle is more slender than in the type, 2.5 to 3 inches long, about 6 lines broad, including the setæ, 2.5 to 3 lines exclusive of the setæ, the clusters toward the base separated and verticillate as in *S. verticillata*, the setæ tinged with purple. Its resemblance to *S. verticillata* is closer than to *S. viridis* but its setæ are barbed upwards.

Festuca ovina *L.*

The sheep's fescue is rare with us. A small patch of it was observed on the banks of the Delaware river at Narrowsburg. July. The specimens have the tall culms of variety *duriuscula*, but the panicle is contracted and the leaves involute.

Bromus purgans *L.*

This was considered a distinct species by Linnæus and stands as such in the N. Y. Flora. But modern botanists have generally connected it with *B. ciliatus* as a variety. I could wish it might be restored to its original position, for as far as my observation goes it is easily distinguished from *B. ciliatus* by its smaller, differently colored, less drooping panicle, its fewer spikelets, its more hairy flowers and its different habitat. It likes shade and most often grows in rocky woods. I have not observed it in the Adirondack region where *B. ciliatus* is quite common.

Danthonia spicata *Bv.*

The panicle in this grass is contracted after flowering. It varies in length from less than an inch to two and a half inches. Two forms occur. In one the leaves and sheaths are glabrous except a tuft of hairs at the throat of the sheaths. In the other the leaves and lower sheaths are clothed with long soft hairs. To distinguish this form I designate it Var. *villosa.* Specimens of it were collected at Brownville and Taberg.

Coprinus micaceus *Fr.* var. **granularis** *n. var.*

Pileus sprinkled with whitish granules or furfuraceous scales. Fulton chain, Hamilton county. August.

Polyporus versicolor *Fr.* var. **carneiporus** *n. var.*

Pores dull flesh-color. Ithaca. *Dudley.*

Dædalea unicolor *Fr.* var. **fumosa** *n. var.*

Pores smoky-brown. Dead birch, *Betula lutea.* Ithaca. October. *Dudley.*

Solenia anomala *Pers.* var. **orbicularis** *n. var.*

Receptacles collected in orbicular groups and seated on a conspicuous, dense, persistent, tomentose, tawny subiculum. Dead branches of appletree. Alcove. March. *Shear.*

Tubercularia carpogena *Pk.*

This name is preoccupied and I substitute for it *Tubercularia decolorans.*

Gyromitra sphærospora (*Pk.*) *Sacc.*

Ithaca. *Dudley.* This species was discovered twenty years ago. A single specimen was received from Prof. Dudley, which is the first one I have seen since the original discovery. The species is evidently rare. I am not aware that any specimens except the New York ones are in existence.

Urocystis Waldsteiniæ *Pk.*

Cooperstown Junction. June. Usually every leaf on the diseased plant is affected by the fungus. The attacked plants do not flower so far as observed. In some instances an old dead and dried leaf of the previous year showed the marks of the fungus, thus indicating that the fungus is perennial.

(E.)

LIST OF NEW YORK FUNGI REPRESENTED AT THE WORLD'S COLUMBIAN EXPOSITION AT CHICAGO, IN THE HORTICULTURAL BUILDING, SECTION S, COLUMN 33, SPACE 304.

Specimens from New York State Herbarium.

EXHIBITOR — CHAS. H. PECK, ALBANY, N. Y.

Edible Fungi.

1 Amanita cæsarea *Scop.*
2 A. rubescens *Fr.*
2*a* A. " Wartless form.
3 Amanitopsis vaginata (*Bull.*) *Roz.*
3*a* A. " var. livida (*Pers.*).
3*b* A. " var. fulva (*Schæff.*)
3*c* A. " var. nivalis (*Grev.*)
4 Lepiota procera *Scop.*
5 L. naucinoides *Peck.*
6 Armillaria mellea *Vahl.*
6*a* A. " clustered specimens.
6*b* A. " var. bulbosa *Peck.*
6*c* A. " var. albida *Peck.*
6*d* A. " var. glabra *Gill.*
6*c* Abortive mushroom.
7 Tricholoma transmutans *Peck.*
8 T. imbricatum *Fr.*
9 T. personatum *Fr.*
10 Clitocybe nebularis *Batsch.*
11 C. media *Peck.*
12 C. infundibuliformis *Schæff.*
12*a* C. " Pressed specimens.
13 C. cyathiformis *Fr.*
14 C. laccata *Scop.*
14*a* C. " Pale irregular form.
14*b* C. " var. amethystina (*Bolt.*)
14*c* C. " var. pallidifolia *Peck.*
14*d* C. " var. striatula *Peck.*
15 Pleurotus ulmarius *Bull.*
15*a* P. " Pressed specimens.
16 P. ostreatus (*Jacq.*) *Fr.*
16*a* P. " Large tuft.
17 P. sapidus *Kalchb.*
18 Hygrophorus virgineus (*Wulf.*) *Fr*
19 H. pratensis (*Pers.*) *Fr.*
20 H. miniatus *Fr.*

21 Lactarius deliciosus (*L.*) *Fr.*
22 L. volemus *Fr.*
23 L. subdulcis (*Bull.*) *Fr.*
24 Russula virescens (*Schœff.*) *Fr.*
25 Cantharellus cibarius *Fr.*
26 Marasmius oreades *Fr.*
27 Cortinarius collinitus (*Pers.*) *Fr.*
28 C. violaceus (*L.*) *Fr.*
29 C. armillatus (*A.& S.*) *Fr*
29*a* C. " Pressed specimens.
30 C. cinnamomeus (*L.*) *Fr.*
30*a* C. " var. semisanguineus *Fr.*
148 Paxillus involutus (*Batsch*) *Fr.*
31 Agaricus arvensis *Schœff.*
32 A. silvicola *Vitt.*
33 A. campester *L.*
33*a* A. " Cultivated form.
34 A. placomyces *Peck.*
35 Coprinus comatus *Fr.*
36 C. atramentarius (*Bull.*) *Fr*
36*a* C. " var. silvicola *Peck.*
37 C. micaceus (*Bull.*) *Fr.*
37*a* C. " var. conicus *Peck.*
38 Boletus scaber *Fr.*
38*a* B. " var. niveus *Fr.*
39 B. subluteus *Peck.*
40 B. subtomentosus *L.*
41 Boletus affinis *Peck.*
42 B. castaneus *Bull.*
43 Polyporus sulphureus (*Bull.*) *Fr.*
43*a* P. " thicker form.
44 Hydnum repandum *L.*
45 H. rufescens *Pers.*
46 H. coralloides *Scop.*
47 Fistulina hepatica *Fr.*
48 Craterellus cornucopioides (*L.*) *Pers.*
49 Clavaria botrytes *Pers.*
50 C. flava *Schœff.*
51 C. cristata *Pers.*
51*a* C. " Large form.
51*b* C. " Dense form.
52 Lycoperdon cyathiforme *Bosc.*
53 Gyromitra esculenta (*Pers.*) *Fr.*
54 Morchella esculenta (*L.*) *Pers.*
55 M. conica *Pers.*
56 M. angusticeps *Peck.*
56*a* M. " Small form.
57 M. deliciosa *Fr.*
58 M. semilibera *DC.*
59 Helvella crispa (*Scop.*) *Fr.*
59*a* H. " Small form.
60 Mitrula vitellina (*Bres.*) *Sacc.*
60*a* M. " var. irregularis *Peck.*

Fungi Growing on and Injurious to Wood.

61 Panus stipticus (*Bull.*) *Fr.*
62 P. operculatus *B. & C.*
63 Lenzites betulina (*L.*) *Fr.*
64 L. vialis *Peck.*
65 L. sepiaria *Fr.*
65*a* L. " var. porosa *Fr.*
66 Schizophyllum commune *Fr.*
67 Polyporus elegans (*Bull.*) *Fr.*
68 P. osseus *Kalchb.*
69 P. chioneus *Fr.*
70 P. guttulatus *Peck.*
71 P. undosus *Peck.*
71*a* P. " Resupinate form.
72 P. crispellus *Peck.*
73 P. fumosus (*Pers.*) *Fr.*
74 P. adustus (*Willd.*) *Fr,*
74*a* P. " var. carpineus (*Schw.*)
75 P. Weinmanni *Fr.*
76 P. borealis (*Wallr.*) *Fr.*
77 P. pubescens (*Schum*) *Fr.*
78 Polyporus cuticularis (*Bull.*) *Fr.*
79 P. nidulans *Fr.*
80 P. gilvus *Schw.*
81 P. glomeratus *Peck.*
82 P. resinosus (*Schrad.*) *Fr.*
83 P. betulinus *Fr.*
83*a* P. " Spotted specimens.
83*b* P. " Young and old plants.
83*c* P. " Brown pubescent form.
84 P. volvatus *Peck.*
85 P. lucidus (*Leys.*) *Fr.*
86 P. pinicola *Fr.*
86*a* P. " Older plants.
86*b* P. " Pale margined specimens.
36*c* P. " Various forms.
87 P. applanatus (*Pers.*) *Wallr*
87*a* P. " Dusted by its spores.
87*b* P. " Various forms.
88 P. fomentarius (*L.*) *Fr.*

88*a* Polyporus fom. Older plants.
88*b* P. " Elongated forms.
88*c* P. " var. zonatus *Peck.*
88*d* P. " Various forms.
89 P. igniarius (*L.*) *Fr.*
89*a* P. " Old plants.
90 P. nigricans *Fr.*
90*a* P. " Old plants.
90*b* P. " var. applanatus *Peck.*
90*c* P. " Subresupinate forms.
91 P. connatus *Fr.*
91*a* P. " Resupinate form.
92 P. carneus *Nees.*
92*a* P. " var. subzonatus *Peck.*
92*b* P. " Resupinate form.
92*c* P. " Various forms.
93 P. conchatus (*Pers.*) *Fr.*
94 P. piceinus *Peck.*
94*a* P. " Resupinate form.
95 P. biformis *Klotz.*
95*a* P. " Resupinate form.
96 P. conchifer *Schw.*
97 P. aureonitens *Pat.*
98 P. hirsutus *Fr.*
98*a* P. " var. albiporus *Peck.*
98*b* P. " var. nigromarginatus (*Schw.*)
99 P. zonatus *Fr.*
100 P. versicolor *Fr.*
100*a* P. " Dark-colored forms.
100*b* P. " Pale-colored forms.
100*c* P. " var. fumosiporus *Peck.*
100*d* P. " Various forms.
101 P. pergamenus *Fr.*
101*a* P. " Effused mycelium.
101*b* P. " var. pseudopergamenus (*Thum.*)
101*c* P. " var. elongatus (*Berk.*)
101*d* P. " Old plants.
02 P. abietinus *Fr.*
102*a* P. " Form zonatus.
102*b* Polyporus abiet. var. irpiciformis *Peck.*
102*c* P. " Resupinate form.
103 Glœoporus conchoides *Mont.*
103*a* " Resupinate form.
104 Poria subacida *Peck.*
105 Trametes suaveolens (*L.*) *Fr.*
106 T. cinnabarina (*Jacq.*) *Fr.*
107 T. Trogii *Berk.*
108 T. mollis *Fr.*
108*a* T. " Resupinate form.
109 T. sepium *Berk.*
109*a* T. " From railroad ties.
110 Dædalea quercina (*L.*) *Pers.*
111 D. unicolor (*Bull.*) *Fr.*
111*a* D. " Old plants.
111*b* D. " Plane form.
111*c* D. " Complicate form.
111*d* D. " var. fumosipora *Peck.*
112 D. confragosa *Pers.*
112*a* D. " Brown specimens.
112*b* D. " var. Cookei *Peck.*
112*c* D. " var. rubescens *Peck.*
112*d* D. " var. Klotzschii *Peck.*
112*e* D. " Irregular forms.
113 Merulius tremellosus *Schrad.*
114 M. lacrimans (*Jacq.*) *Fr.*
115 Irpex cinnamomeus *Fr.*
116 Odontia lateritia *B. & C.*
117 Stereum complicatum *Fr.*
117*a* S. " var. laceratum *Peck.*
145 S. bicolor (*Pers.*) *Fr.*
145*a* S. " Old plants.
146 S. versicolor (*Sw.*) *Fr.*
147 S. sericeum (*Schw.*)
118 Chlorosplenium æruginosum (*Œd.*) *DeN.*
118*a* Wood stained by its Mycelium.
119 Wood permeated by Mycelium.
120 Bark overrun by Mycelium.

Fungi Injurious to Cultivated and Useful Plants.

121 Glœosporium lagenarium (*Pass.*) *S. & R.*
122 Plowrightia morbosa (*Schw.*) *Sacc.*
122*a* P. " on wild red cherry.
122*b* P. " on wild black cherry.
122*c* P. " on beach plum.
122*d* Plowrightia morbosa on cultivated plum.
123 Monilia fructigena *Pers.*
123*a* M. " on plums.
123*b* M. " on pears.
123*c* M. " on twigs and leaves of apricots.

124 Entomosporium maculatum *Lev.*
124*a* E. mac. on pear leaves and fruit.
125 Plasmopara viticola (*B. & C.*) *B. & DeT.*
125*a* Plasmopara " on fruit of wild grape.
125*b* Plasmopara " on leaves of Niagara grape.
126 Phytophthora infestans (*Mont.*) *DeBy.*
127 Peronospora parasitica (*Pers.*) *Tul.*
128 Cladosporium fulvum *Cke.*
129 Cercospora Apii *Fres.*
130 C. beticola *Sacc.*
131 Puccinia Malvacearum *Mont.*
132 Ustilago Maydis (*D. C.*) *Cd.*
132*a* U. " on ears of Indian corn.
133 U. Tritici (*Pers.*) *Jensen.*
134 U. Hordei (*Pers.*) *K. & S.*
135 U. Avenæ (*Pers.*) *Jensen.*
136 Cryptospora Gœppertiana *Kuhn.*
137 Dimerosporium Collinsii (*Schw.*) *Thum.*
138 Hypoderma lineare *Peck.*

Fungi Injurious to Noxious Weeds and Animals.

139 Empusa Muscæ *Cohn.*
140 Sporendonema myophilum *Sacc.*
141 Cystopus candidus *Lev.*
142 Peronospora Linariæ *Fckl.*
143 Puccinia suaveolens (*Pers.*) *Rostr.*
143*a* P. " Later form.
144 Ustilago Cesatii *Wald.*

Recapitulation.

	Species.
Edible fungi	61
Fungi growing on and injurious to wood	63
Fungi injurious to cultivated and useful plants	18
Fungi injurious to noxious weeds and animals	6
	148

(F.)

PRELIMINARY LIST OF HYMENOMYCETOUS FUNGI INHABITING THE WOOD OR BARK OF THE TRUNKS OR BRANCHES OF OUR PRINCIPAL CONIFEROUS FOREST TREES.

TSUGA CANADENSIS. *Carr.*

Hemlock.

Armillaria mellea *Vahl.*
Tricholoma decorosum *Pk.*
T. multipunctum *Pk.*
Clitocybe ectypoides *Pk.*
Collybia platyphylla *Fr.*
C. abundans *Pk.*
C. rugosodisca *Pk.*
C. succosa *Pk.*
Mycena Leaiana *Berk.*
M. epipterygia *Scop.*
Omphalia lilacifolia *Pk.*
O. Campanella *Batsch.*
Pleurotus porrigens *Pers.*
P. striatulus *Fr.*
Naucoria bellula *Pk.*
N. geminella *Pk.*
Paxillus atrotomentosus *Fr.*
P. panuoides *Fr.*
Panus stypticus *Bull.*
P. lacunosus *Pk.*
Lenzites sepiaria *Fr.*
L. betulinus *Fr.*
Lentinus lepideus *Fr.*
Polyporus lucidus *Leys.*

Polyporus benzoinus *Fr.*
P. pinicola *Fr.*
P. epileucus *Fr.*
P. cæsius *Fr.*
P. undosus *Pk.*
P. crispellus *Pk.*
P. maculatus *Pk.*
P. Weinmanni *Fr.*
P. borealis *Fr.*
Polystictus abietinus *Fr.*
Poria vulgaris *Fr.*
P. subacida *Pk.*
P. Vaillantii *Fr.*
P. rhodella *Fr.*
Trametes cinnabarina *Fr.*
Trametes sepium *Berk.*
Merulius himantioides *Fr.*
M. subaurantiacus *Pk.*
Solenia villosa *Fr.*
Hydnum farinaceum *Fr.*
Mucronella calva *Fr.*
Tremellodon gelatinosum *Pers.*
Stereum sanguinolentum *A. & S.*
S. rugosum *Fr.*
S. radiatum *Pk.*
Hymenochæte tenuis *Pk.*
Corticium amorphum *Pers.*
Dacrymyces deliquescens *Duby.*
Ditiola radicata *Fr.*
Clavaria abietina *Fr.*

PICEA NIGRA *Lk.*

Spruce.

Clitocybe sulphurea *Pk.*
Mycena purpureofusca *Pk.*
M. hiemalis *Osb.*
Omphalia Austini *Pk.*
Lenzites sepiaria *Fr.*
L. heteromorpha *Fr.*
Lentinus lepideus *Fr.*
Polyporus Schweinitzii *Fr.*
P. picipes *Fr.*
P. aurantiacus *Pk.*
P. volvatus *Pk.*
P. dualis *Pk.*
P. carneus *Fr.*
P. pinicola *Fr.*
P. borealis *Fr.*
Polystictus piceinus *Pk.*
P. versicolor *Fr.*
P. balsameus *Pk.*
P. abietinus *Fr.*
P. variiformis *Pk.*
Poria subacida *Pk.*
Poria vaporaria *Fr.*
P. vulgaris *Fr.*
P. odora *Pk.*
P. mutans *Pk.*
P. marginella *Pk.*
Trametes serpens *Fr.*
Merulius Ravenelii *B. & C.*
M. molluscus *Fr.*
Hydnum farinaceum *Fr.*
Caldesiella ferruginosa *Sacc.*
Irpex fuscoviolaceus *Fr.*
Odontia fusca *C. & E.*
Stereum rugosum *Fr.*
S. radiatum *Pk.*
S. ambiguum *Pk.*
Hymenochæte abnormis *Pk.*
Corticium sulphureum *Fr.*
C. subincarnatum *Pk.*
C. subaurantiacum *Pk.*
C. cremoricolor *B. & C.*
Hirneola auricula-Judæ *Fr.*

ABIES BALSAMEA *Mill.*

Balsam fir.

Clitocybe sulphurea *Pk.*
Pleurotus mitis *Pers.*
Lentinus strigosus *Schw.*
Polyporus pinicola *Fr.*
P. volvatus *Pk.*
Polystictus abietinus *Fr.*
Polystictus balsameus *Pk.*
Merulius aureus *Fr.*
Stereum balsameum *Pk.*
Corticum sulphureum *Fr.*
C. amorphum *Pers.*
Hirneola auricula-Judæ *Fr.*

PINUS STROBUS *L.*

White pine.

Tricholoma flavescens *Pk.*
T. rutilans *Schæff.*
Collybia rubescentifolia *Pk.*
Pleurotus striatulus *Fr.*
Lenzites sepiaria *Fr.*
L. vialis *Pk.*
Lentinus lepideus *Fr.*
Paxillus atrotomentosus *Fr.*
P. panuoides *Fr.*
Boletus hemichrysus *B. & C.*
Polyporus osseus *Kalchb.*
P. pinicola *Fr.*
Poria pinea *Pk.*
Merulius lacrimans *Fr.*
Tremella pinicola *Pk.*
T. foliacea *Pers.*
Dacrymyces deliquescens *Duby.*

PINUS RIGIDA *Mill.*

Pitch pine.

Pluteus umbrosus *Pers.*
Lenzites sepiaria *Fr.*
Polyporous circinatus *Fr.*
P. volvatus *Pk.*
P. Weinmanni *Fr.*
Polystictus abietinus *Fr.*
Poria vaporaria *Fr.*
Trametes Pini *Fr.*
Stereum sanguinolentum *Fr.*

From the 48th Report of the
New York State Museum

REPORT

OF THE

STATE BOTANIST.

1894.

REPORT.

To the Honorable the Regents of the University of the State of New York:

Gentlemen.— I have the honor of communicating to you the following report, covering the time from September, 1893, to July, 1894.

Specimens of plants for the State Herbarium have been collected by the Botanist in the counties of Albany, Clinton, Essex, Oneida, Rensselaer, Suffolk, Ulster and Washington.

The number of species of which specimens have been added to the Herbarium is 115, of which 24 were not previously represented therein. The species described as new are 10. A list of added species is marked A.

Correspondents to the number of 11 have contributed specimens. Most of these specimens represent extra-limital species, but five species new to the State are represented by them and four new to science. A list of the contributors and of their contributions is marked B.

A record of species not previously recognized as belonging to our flora, together with descriptions of new species, is marked C.

Notes and observations on species already recorded will be found under D.

The genus Carex is one of the largest, and at the same time one of the most distinct and most easily recognized, of all our plant genera. In the Flora of the State of New York, Dr. John Torrey records 91 species belonging to this genus. In 1881 the number of New York species had increased to 119. At the present time we have more than 130 species. Only 29 are recorded in the Manual that have not been found in our State, and six of these are introduced species and yet quite limited in their range. The genus is a most interesting one to botanists who have acquired even a limited knowledge of it, but many pass it by as unworthy their attention or too full of difficulties to permit of the easy identification of the species. To many beginners in the study of botany these plants have been a kind of botanical bugbear. The difficulties attending their study seem to have been needlessly increased by defective descriptions, by a failure in some cases to detect the proper limits of species, and by throwing together and describing as one species forms that should be kept separate. In the last edition of the Manual there are many instances of the reduction of forms which in earlier years were considered good species by our most eminent botanists, so that they now stand as mere varieties to other related forms. Such a grouping of distinct forms seems to me to be opposed to that clear and accurate discrimination which the study of natural science ought to cultivate, and its tendency seems to be to encourage habits of careless observation and loose generalization. Some carices, it is true, resemble each other closely, but so long as they have constant characteristic differences, even though these may be slight, it seems to me much better to recognize these differences and give them their just value in classification. And just here appears to be one cause for the absorbing interest with which the study of these plants is invested. The close observation and the nice discrimination requisite in distinguishing closely allied species is most gratifying to an ardent student of nature intent on finding her hidden truths and solving her most intricate problems. And it is no mean accomplishment to be able to recognize accurately the characters that require the separation of closely related species of this genus.

One species not recognized in the Manual has recently been detected by Dr. Howe, others that have hitherto been regarded as mere varieties are, I am confident, worthy of specific value, and still other forms that have not been recorded have occurred. Influenced by these facts, and having in view the large number of species that belong to our flora, it has seemed desirable to me to bring together in one report the revised descriptions of all our New York species and varieties of the genus Carex.

This will facilitate the study of the carices of our State and give to New York botanists an additional incentive to the study of these interesting plants. I deem myself fortunate in having enlisted the interest and the aid of Dr. E. C. Howe in this work. Dr. Howe has long made a special study of the carices and his thorough knowledge of our species eminently qualifies him to speak and write about them with authority. He has prepared the monograph of our species which is here submitted and marked E.

In consequence of unexpected delay and difficulty in issuing the descriptions and illustrations of our edible and poisonous mushrooms in a separate publication, as was at first contemplated, it has been thought best to include them with other matter in the present report. The edition will be somewhat limited and may not be sufficient to supply the demand unless the issue of extra copies shall be authorized, but it will be better than a longer delay, and is apparently the best that can be done at present. This part of the Report is marked F.

The specimens of fungi that were taken from the Herbarium and placed on exhibition at the World's Fair in Chicago last year have been returned. None were lost, but owing to dampness a few were injured by mold. They are yet in the boxes in which they were returned, not having been removed because of the possibility that the New York State exhibits might be required for a permanent exhibit at home.

Respectfully submitted.

CHARLES H. PECK.

Albany, *July* 1, 1894.

(A.)

ADDITIONS TO THE HERBARIUM.

New to the Herbarium.

Aster longifolius *Lam.*
Stachys palustris *L.*
Carex littoralis *Schw.*
Inocybe subtomentosa *Pk.*
Cortinarius rimosus *Pk.*
Gomphidius nigricans *Pk.*
Hydnum scabripes *Pk.*
Radulum molare *Fr.*
Pyrenochæta collabens *Pk.*
Vermiculare Hepaticæ *Pk.*
V. Schœnoprasi *Auers.*
Sphæropsis ulmicola *E. & E.*
Diplodia subtectoides *Pk.*
Septoria centaureicola *Brun.*
S. Divaricatæ *E. & E.*
Tolyposporium bullatum *Schrœt.*
Ovularia decipiens *Sacc.*
Cylindrosporium Padi *Karst.*
Cladosporium carpophilum *Thum.*
Dendryphium nodulosum *Sacc.*
Coniothecium Rubi *Pk.*
Sphærella rubina *Pk.*
Diaporthe robusta *Pk.*
Cucurbitaria Comptoniæ *E. & E.*

Not New to the Herbarium.

Nasturtium officinale *R. Br.*
Hypericum perforatum *L.*
Rhus Toxicodendron *L.*
Ailanthus glandulosus *Desf.*
Vitis riparia *Mx.*
Rosa blanda *Ait.*
R. humilis *Marsh.*
Pyrus arbutifolia *L.*
Lonicera hirsuta *Eaton.*
Spiræa salicifolia *L.*
Sium cicutæfolium *Gmel.*
Eupatorium perfoliatum *L.*
Solidago cæsia *L.*
S. Canadensis *L.*
S. nemoralis *Ait.*
Aster linariifolius *L.*
A. lævis *L.*
A. ericoides *L.*
A. multiflorus *Ait.*
A. diffusus *Ait.*
A. Tradescanti *L.*
A. paniculatus *Lam.*
A. prenanthoides *Muhl.*
A. puniceus *L.*
Bidens connata *Muhl.*
B. cernua *L.*
Xanthium Strumarium *L.*
X. Canadense *Mill.*
Hieracium aurantiacum *L.*
Verbascum Blattaria *L.*
Cuscuta Gronovii *Willd.*
Sonchus arvensis *L.*
S. oleraceus *L.*
Ipomæa purpurea *Lam.*
Callitriche verna *L.*
Potamogeton Spirillus *Tuckm.*
P. heterophyllus *Schrad.*
Urtica gracilis *Ait.*
Amaranthus retroflexus *L.*
A. chlorostachys *Willd.*
Polygonella articulata *Meisn.*
Polygonum aviculare *L.*
P. erectum *L.*
P. Douglassii *Greene.*
P. Hydropiper *L.*
P. lapathifolium *L.*
P. Muhlenbergii *Wats.*
P. Virginianum *L.*
P. dumetorum *L.*
Fraxinus Americana *L.*
Hedeoma pulegioides *Pers.*
Thymus Serpyllum *L.*
Smilax herbacea *L.*
Eleocharis acicularis *R. Br.*
Carex varia *Muhl.*
C. prasina *Wahl.*
C. arctata *Boott.*
C. aurea *Nutt.*
Panicum capillare *L.*
Agrostis perennans *Tuckm.*

Zizania aquatica *L.*
Muhlenbergia sobolifera *Trin.*
M. Mexicana *Trin.*
M. sylvatica *T. & G.*
Avena sativa *L.*
Sporobolus vaginæflorus *Vasey.*
Agropyrum caninum *R. & G.*
Glyceria grandis *Wats.*
G. nervata *Trin.*
Hordeum vulgare *L.*
H. distichum *L.*
Lycopodium clavatum *L.*
Tricholoma terreum *Schæff.*
Hebeloma Colvini *Pk.*
Stereum sericeum *Schw.*
Cæoma nitens *Schw.*
Uromyces Desmodii *Cke.*
Puccinia Convolvuli (*Pers*).
P. graminis *Pers.*
Ustilago neglecta *Niessl.*
Urocystis Waldsteiniæ *Pk.*
Septoria Lobeliæ *Pk.*
S. Dentariæ *Pk.*
S. Scrophulariæ *Pk.*
Cercospora clavata (*Ger.*).
Plasmopara viticola (*B. & C.*).
Taphrina rubrobrunnea (*Pk.*).
Helvella crispa *Fr.*
Leotia marcida *Pers.*
L. circinans *Pers.*
Diatrypella prominens (*Howe*).

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

E. J. Durand, Ithaca, N. Y.

Blephilia ciliata *Raf.*

Wm. T. Davis, New Brighton, N. Y.

Populus heterophylla *L.*
Quercus Brittoni *Davis.*
Pinus inops *Ait.*

E. W. D. Holway, Decorah, Iowa.

Ravenelia Holwayi *Diet.*
Puccinia Cryptanthes *D. & H.*

J. Dearness, London, Can.

Calamintha acinos *Benth.*
Armillaria mellea *Vahl.*
Phoma paniculata *E. & D.*
Septoria Negundinis *E. & E.*
Rabenhorstia Tiliaceæ *E. & E.*
Hendersonia discosioides *E. & D.*
Strumella stagonosporioides *E. & E.*
Aschersonia carpinicola *E. & D.*
Cylindrosporium Chrysanthemi *E. & D.*
Cercospora Lespedezæ *E. & D.*
C. Symphoricarpi *E. & E.*
C. racemosa *E. & M.*
Botrytis affinis *E. & E.*
Didymosphæria vagans *E. & E.*
Lasiosphæria striata *E. & E.*
Teichosphæria subcalva *E. & E.*
Massariovalsa caudata *E. & E.*

A. P. Morgan, Preston, Ohio.

Cladotrichum polysporum *Cd.*
Sporotrichum mirabile *B. & Br.*
Synthetospora electa *Morg.*
Cylindrocladium scoparium *Morg.*
Ophiocera Ohiense *E. & E.*
Ceratostoma setigerum *E. & E.*
Hypoxylon Morgani *E. & E.*
H. albocinctum *E. & E.*
Hypocrea tremellicola *E. & E.*

Wright Rives, Washington, D. C.

Agaricus subrufescens *Pk.*

C. V. Piper, Pullman, Wash.

Æcidium porosum *Pk.*
Æ. Clematidis *DC.*
Æ. Hydrophylli *Pk.*
Æ. Pentastemonis *Sacc.*
Uromyces Erythronii (DC.).
U. Fabæ (Pers.).
U. Glycyrrhizæ (Rabh.)
Puccinia Caricis (Schum.).
P. suaveolens (Pers.).
P. Symphoricarpi *Hark.*
P. congregata *E. & H.*
P. Galii Pers.
P. Scirpi DC.
P. Balsamorhizæ *Pk.*
P. Circææ *Pers.*
P. Saxifragæ *Schlect.*
P. Troximontis *Pk.*
P. McClatchiana *D. & Hal.*
P. Ziziæ *E. & E.*
P. mirabilissima *Pk.*
Chrysomyxa Ledi *A. & S.*
C. Rhododendri (DC.)
Calyptospora Gœppertiana *Kuhn.*
Coleosporium Solidaginis (Schw.).
Melampsora Tremulæ *Tul.*
Dasyscypha Gaultheriæ *E. & E.*
Rhytisma punctatum *Fr.*
R. Salicis (Pers.).
Coccomyces coronatus Schum.
Phyllactinia suffulta (Reb.)
Uncinula Salicis (DC.).

Ascochyta achlyicola *E. & E.*
Marsonia Veratri *E. & E.*
Phyllosticta rhamnigena *Sacc.*
Septoglæum Nuttallii *Hark.*
Septoria Rubi *West.*
S. Populi *Desm.*
S. saccharina *E. & E.*
S. Œnanthis *E. & E.*
S. alnifolia *E. & E.*
S. Megarrhizæ *E. & E.*
S. cornicola *Desm.*
S. circinata *E. & E.*
S. Symphoricarpi *E. & E.*
S. Brunellæ *E. & H.*
S. Rudbeckiæ *E. & Hal.*
Macrosporium hybridum *E. & E.*
Ramularia Philadelphi *Sacc.*
Cercospora rosicola *Pass.*
C. ribicola *E. & E.*
C. sambucina *E. & K.*
Cylindrosporium Filipendulæ *Thum.*
Peronospora ribicola *Schrœt.*
Physoderma Menyanthis *De By.*
Physarum papaveraceum *McB.*
Linospora Brunellæ *E. & E.*
Sphærella arbuticola *Pk.*
Sphærotheca Humuli *DC.*
Microsphæria Alni (DC.)
M. Symphoricarpi *Howe.*
Erysiphe Cichoreacearum *DC.*

Arthur K. Harrison, Lebanon Springs, N. Y.

Stachys palustris *L.*
Thymus Serpyllum *L.*
Potamogeton Spirillus *Tuckm.*

Lycopodium clavatum *L.*
Geaster limbatus *Fr.*
Hymenochæta rubiginosa *Lev.*

L. M. Underwood, Greencastle, Ind.

Gyromitra brunnea *Undw.*

E. C. Howe, M. D., Lansingburgh, N. Y.

Carex deflexa *Hornem.*
C. Emmonsii *Dew.*
C. Pennsylvanica *Lam.*

Carex sterilis *Willd.*
C. crus-corvi *Shutt.*
C. torta *Boott.*

C. L. Shear, Alcove, N. Y.

Pyrenochæte collabens *Pk.*
Diplodia subtectoides *Pk.*

Ovularia decipiens *Sacc.*
Diaporthe robusta *Pk.*

(C.)

SPECIES NOT BEFORE REPORTED.

Carex littoralis *Schw.*

Wet places near Islip, Long Island. May.

Volvaria Peckii *Atk. n. sp.*

Pileus thin, convex, glabrous, viscid, finely striate on the margin, whitish; lamellæ rather close, thin, pale-flesh color; stem slightly tapering upward, glabrous, solid, whitish, with a loose, well-developed membranous volva at the base; spores even, subelliptical, .0003 to .0004 in. long, .0002 to .00024 broad, usually containing a single large nucleus.

Pileus about 3 in. broad; stem 3 to 3.5 in. long, 3 to 4 lines thick.

Decaying wood. Ithaca. Sept. *G. F. Atkinson.*

This species differs from *V. speciosa* in its striate margin and smaller spores. It is probably very rare and but one specimen is known to be in existence.

Inocybe subtomentosa *n. sp.*

Gregarious or subcæspitose; pileus thin, dry, convex or plane, minutely hairy-tomentose, brownish-tawny; lamellæ thin, close, adnate, slightly emarginate, at first whitish, then tinged with yellowish green, finally brownish tawny: stem short, solid, slightly silky-fibrillose, colored like or a little paler than the pileus, often with a conspicuous white mycelium at the base: spores subelliptical, .0003 to .0004 in. long, .0002 to .00024 broad.

Pileus 6 to 12 lines broad; stem about 1 in. long, 1 line thick.

Gravelly soil among fallen leaves Rouses Point. Sept.

This species differs from *I. tomentosa* by its darker color, larger spores and the entire absence of an umbo. Its prominent features are its small size, minutely tomentose pileus and nearly uniform brownish-tawny color when mature. The lamellæ are usually whitish and minutely crenulate or beaded on the edge. The species appears to belong to the section *Laceræ*, although the pileus scarcely shows any laceration, and even the tomentose hairiness is hardly noticeable except on close inspection. It is distinguished from *I. fibrillosa* by its solid merely fibrillose stem and by the absence of scales on the disk of the pileus.

Cortinarius rimosus *n. sp.*

Pileus fleshy, firm, convex or plane, glabrous, at first pale grayish violaceous, then tinged with reddish-brown, the surface cracking into appressed scales or becoming variously rimose, flesh whitish; lamellæ rather broad, distant, subventricose, emarginate, violaceous when young, becoming brownish-ochraceous with age; stem equal or slightly thickened at the base, white and silky with the white veil, tinged with violaceous within; spores subelliptical, .0004 to .0005 in. long, .00024 to .00028 broad, usually containing a single large nucleus.

Pileus 2 to 4 in. broad; stem 1.5 to 3 in. long, 4 to 6 lines thick.

Grassy ground in open places in thin woods. Westport. September.

This species belongs to the subgenus Dermocybe. It is a rather large and stout plant and remarkable for the tendency of the epidermis to crack in areas. The thin margin is often split. The species belongs to the same group as *C. caninus* and *C. azureus*, from both of which it differs in its rimose pileus and distant lamellæ. The color of the young pileus is suggestive of that of *Tricholoma personatum.*

Gomphidius nigricans *n. sp.*

Pileus convex or nearly plane, pale brownish-red, covered with a tough gluten which becomes black in drying, flesh firm, whitish; lamellæ distant, decurrent, some of them forked, white becoming smoky-brown, black in the dried plant; stem subequal, longer than the diameter of the pileus, glutinous, solid, at first whitish especially at the top, soon blackish by the drying of the gluten, whitish within, slightly tinged with red toward the base; spores oblong-fusoid, .0006 to .001 in. long, .00024 to .0003 broad.

Pileus 1 to 2 in. broad; stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Under pine trees. Westport. September.

This species is easily known by the blackening gluten which smears both pileus and stem and even forms a veil by which the lamellæ in the young plant are concealed. In the dried state the whole plant is black.

Hydnum scabripes *n. sp.*

Pileus fleshy, firm, convex, glabrous, pinkish-gray, the decurved margin extending beyond the aculei, flesh white; aculei whitish or subcinereous, becoming ferruginous-brown, decurrent; stem stout, nearly equal, scabrous-dotted; spores subglobose or irregular, somewhat nodulose, colored, .0003 in. broad.

Pileus 4 to 5 in. broad; stem 4 to 5 in. long, about 1 in. thick.

Under hemlock trees, *Tsuga Canadensis*. Elizabethtown. September.

The prominent characters of this species are its peculiar color and its scabrous or rough-dotted stem.

Radulum molare *Fr.*

Dead bark of elm, *Ulmus Americana*. Cooperstown Junction. June.

I have seen no description of this species which gives the spore characters. In our specimens the spores are naviculoid-elliptical, .0003 in. long, .00016 to .0002 broad. Sometimes the plant is effuso-reflexed, in which case the upper surface of the pileus is coarsely strigose or fibrous and somewhat resembles the pileus of *Merulius tremellosus*.

Pyrenochaeta collabens *n. sp.*

Perithecia .014 to .018 in. broad, superficial, crowded or closely gregarious, submembranous, subglobose, often collapsing when old, the upper part sometimes falling away and leaving a cup-shaped base, black, the setæ few, black, mostly near the base of the perithecia; spores narrowly elliptical, nearly colorless, .0003 to .00045 in. long, .00016 to .0002 broad.

Bark and wood of apple tree. Alcove. October to January. *C. L. Shear.*

Vermicularia Hepaticæ *n. sp.*

Perithecia minute, .003 to .004 in. broad, epiphyllous, furnished with black diverging setæ which sometimes have one or two septa near the base; spores narrowly fusiform, slightly curved, acute at each end, .0007 to .0009 in. long, sometimes appearing to be spuriously septate in the middle.

Dead spots on leaves of *Hepatica acutiloba*.

Helderberg mountains. July.

This fungus sometimes occurs in company with *Protomyces fuscus*. It is so small that it is scarcely visible to the naked eye.

Vermicularia Schœnoprasi *Auers.*

Dead leaves of wild leek, *Allium tricoccum.*

Pierrepont Manor. June.

Sphæropsis ulmicola *E. & E.*

Dead branches of elm. *Ulmus Americana.* Cooperstown Junction. June.

In our specimens the perithecia are sometimes collected in clusters of two or three as in the genus Haplosporella, and they are erumpent and exposed, not covered by the epidermis. The spores are very pale, almost hyaline. But in other respects they agree well with the description of the typical form.

Diplodia subtectoides *n. sp.*

Perithecia small, numerous, erumpent, arranged in a somewhat seriate manner or in short interrupted straight or flexuous lines; spores obovate or elliptical, continuous or uniseptate, .0005 to .0006 in. long, .00025 to .0003 broad.

Dead bark of maple, *Acer saccharinum.* Alcove. November. *Shear.*

This species may be separated from its near relative, *D. subtecta*, by its smaller spores, with simple ones often intermingled with those of normal form.

Septoria centaureicola *Brun.*

Living leaves of seedling plants of bluebottle, *Centaurea Cyanus.* Menands. November and December.

In our specimens the spores are a little shorter and broader than the dimensions given in the description of the typical form. The plant is therefore designated Variety *brevispora.* Spores .0012 to .0016 in. long, .00012 broad.

Septoria Divaricatæ *E. & E.*

Living or languishing leaves of divaricate phlox, *Phlox divaricata.* Pierrepont Manor. June.

Tolyposporium bullatum (*Schrœt.*)

In the ovaries of barnyard grass, *Panicum crus-galli* var. *muticum.* Whitehall. September.

In our specimens only a few of the ovaries of a panicle are affected. These swell to an unusual size. They are green or greenish externally, and are filled with a mass of olive-brown spores collected in glomerules varying much in size and shape.

Ovularia decipiens *Sacc.*

Living or languishing leaves of buttercups, *Ranunculus acris.* Alcove. June and October. *Shear.*

Cylindrosporium Padi *Karst.*

Living leaves of cultivated plum, *Prunus domestica.* Helderberg mountains. September.

Some mycologists appear to have confused *Septoria cerasina* Peck, with this species, but the two are clearly distinct and may easily be separated at a glance. In *S. cerasina* the spores ooze out in a gelatinous mass or in tendrils; in this species they form a white flocculent mass on the surface of the matrix as do other species of this genus.

Cladosporium carpophilum *Thum.*

On peaches. Menands. August and September. The fungus forms small olive-green spots on the fruit. Sometimes these spots become confluent and form patches. They are often more numerous on one side of the peach than on the other, and the affected side fails to develop as rapidly as the other, giving the fruit a flattened or deformed appearance, and the flesh beneath the fungus is more tough and less succulent than the unaffected part. The fungus is, therefore, to be classed among the injurious species.

Dendryphium nodulosum *Sacc.*

Dead stems of bleeding heart, *Dicentra spectabilis.* Menands. April.

The fungus bears some resemblance to *Helminthosporium interseminatum*, but is separable even by the naked eye, by reason of its more ferruginous color.

Coniothecium Rubi *n. sp*

Thinly effused, olive-green; spores coalescing in glomerules varying much in size and in the number of component spores or cells, separate spores .0006 to .0007 in. broad, glomerules about .0016 in. broad.

Injured stems and branches of cultivated raspberry. Menands. April.

The fungus is found in places where the epidermis has been broken or removed by the swaying of the plants in the wind and rubbing against each other. Numerous hyaline elliptical spores about .0003 in. long, .0002 broad, are intermingled with the larger spores of the species.

Sphærella rubina *n. sp.*

Perithecia minute, .007 to .009 in. broad, commonly gregarious, sometimes forming extended patches, submembranous, obscurely papillate, pertuse, subglobose or depressed, at first covered by the epidermis, becoming superficial when the epidermis falls away, black; asci cylindrical, subsessile, .003 to .0035 in. long, .00045 to .0005 broad; spores uniseriate or subbiseriate, oblong, obtuse, uniseptate, generally constricted in the middle, hyaline, .0006 in. long, .00024 to .0003 broad, the upper cell often a little larger than the lower.

Stems of cultivated raspberries. Menands. April and May.

This species is injurious to the plants it attacks. The affected plants either die from the disease or are so weakened by it that they are winter-killed wholly or in part. Generally the epidermis is whitened over the patches of the fungus, but sometimes brown spots indicate the presence and location of the fungus. The mycelium consists of brown septate filaments. From *Didymella applanata*, which this fungus resembles in some respects, it is separated by the absence of paraphyses.

Diaporthe robusta *n. sp.*

Pustules numerous, erumpent, surrounded by a black circumscribing line and covered by a black crust; ostiola obscure or prominent and distinct; asci subfusiform, .003 to .0035 in. long, .0006 broad in the widest part; spores crowded or biseriate, oblong-elliptical, obtuse, strongly constricted in the middle, .0005 to .0007 in. long, .00025 to .0003 broad, each cell usually containing a single large nucleus.

Bark of maple, *Acer saccharinum* and *Acer dasycarpum*. Gansevoort. *Peck*. Alcove. *Shear*.

This species is allied to *D. acerina*, but is distinguished from it by the more numerous pustules, larger asci and larger, more obtuse and more strongly constricted spores.

Cucurbitaria Comptoniæ *E. & E.*

Dead stems of sweet fern, *Comptonia asplenifolia.* Cooperstown Junction. June.

(D.)

REMARKS AND OBSERVATIONS.

Hesperis matronalis *L.*

This introduced plant is abundant along the Susquehanna river near Binghamton. *W. N. Clute.*

Rosa blanda *Ait.*

The fruit of this species is described as globose. On the hills near Elizabethtown, specimens were found in which the fruit was pointed at the base and subpyriform. These were sometimes intermingled with fruit of the normal form, even on the same plant. The stems of some of the plants were quite prickly toward the base. The species is manifestly quite variable, and in this case the variation is toward the western *Rosa Sayi.*

Eupatorium perfoliatum.

A form of this plant occurs near Shokan, in which the flower heads are purplish.

Aster cordifolius *L.*

The white-rayed form occurs occasionally about Whitehall, also near Westport.

Aster lævis *L.*

The prevailing form of this beautiful aster, about Whitehall, has all the leaves, except the two or three lower ones, very narrow and tapering from the base to the apex. They are from three to six lines broad and three to six inches long.

Aster paniculatus *Lam.*

A form grows about Whitehall in which the stems and branches are slender and weak or half reclining, and the flower heads are more scattered than usual.

Aster longifolius *Lam.*

The plant reported under this name in the Thirty-fourth Rpeort proves to be another species, but what I now take to be the true species was found along the Oswegatchie river above Cranberry lake and between Sternbergs and "The Plains." It is a northern species, and will probably not be found as far south as the Catskill mountains.

Aster ptarmicoides *T. & G.*

Rocky ledges east of Whitehall. September.

Bidens connata *Muhl.*

In the description of this species in the last edition of the Manual, "rays none" is given as one of the prominent characters of the species, and in the description given in Torrey's Flora of New York, it is said that the rays are always wanting. Nevertheless plants of this species having conspicuous ray flowers were found about Whitehall. Also *Bidens cernua* without rays is common there and in other places farther north.

Senecio Robbinsii *Oakes.*

Rocky cliffs east of Whitehall, in company with *Aster ptarmicoides.*

Thymus Serpyllum *L.*

Stephentown, Rensselaer county. *A. K. Harrison.*

Stachys palustris *L.*

Dry gravelly hillsides. Lebanon Springs. August. *Harrison.*

This species, according to the botany and as indicated by the name, commonly grows in wet grounds. But in the locality mentioned it has been found only in patches on dry ground. The plants are small and starved in appearance, probably the result of uncongenial surroundings. The form previously referred to this species as variety *aspera* is now classed as a distinct species, and until now the typical form, or true *S. palustris*, has not been represented in the State Herbarium.

Polygonum Douglassii *Greene.*

This plant grows in thin soil covering rocks on Cobble hill near Elizabethtown. It was first found near the summit, but it occurs also near the base. Its branches are usually rather long, slender and somewhat straggling, bent or crooked. It blossoms as late as September. The sepals are greenish or red. The fruit is drooping and drops easily.

Polygonum nodosum *Pers.*

Shore of Lake Champlain near Rouses Point. September.

Potamogeton heterophyllus *Schreb.*

Both variety *maximus* and variety *minimus* are found in Warner's lake, near East Berne. The latter was in fruiting condition in September, but the former at the same time bore no fruit, although it had flower spikes.

Panicum capillare *L.* var. flexile *Gatt.*

Rocky places near Whitehall. September.

Muhlenbergia sobolifera *Trin.*

This grass is found as far north as Whitehall, where it grows in dry soil about rocky cliffs.

Lycopodium clavatum *L.*

A singular sterile form of this clubmoss was found by Mr. Harrison near Lebanon Springs. The usual peduncles, instead of terminating in fruiting spikes, are excessively prolonged, some of them being 12 or 14 inches long, and they remain wholly sterile, no fruit spike developing.

Tricholoma terreum *Schaeff.* var. fragrans *Peck.*

Near Ticonderoga, also near Elizabethtown. September.

If this species was not very variable, the variety here noticed might easily be regarded as a distinct species. It has a decided farinaceous odor and flavor, the pileus becomes paler with age and the young moist flesh, which is brownish, fades to white when dry. The lamellæ are rather thin, close and adnate, and the stem, in some forms at least, is solid and white.

Hebeloma Colvini *Pk.* var. velatum *n. var.*

Scattered or cæspitose; pileus convex, plane or even slightly depressed, brittle, obtuse or umbonate, adorned with a tomentose veil, which either disappears with age or persists and makes the pileus obscurely floccose-scaly or its margin silky or floccose; lamellæ rather close, subventricose, adnexed; stem equal, brittle, hollow, silky-fibrillose and often somewhat floccose-squamose toward the base, sometimes annulate with a thick, soft, cottony ring; spores subelliptical, even, .0004 to .0005 inch long, .00024 to .0003 broad.

Pileus 1 to 2.5 inches broad; stem 1.5 to 2.5 inches long, 2 to 3 lines thick.

Gravelly ground under cottonwood trees, *Populus monilifera.* Rouses Point. September.

Three forms were found growing together. The first and most abundant has the mature pileus glabrous or slightly silky on the margin only; the second has the grayish or reddish-gray pileus adorned with appressed floccose scales; the third differs from the second only in the dark chestnut color of the pileus. The veil is grayish-white and when well developed it adheres partly in fragments to the margin of the pileus and partly as an annulus to the stem. The cavity of the stem is very small. A slight odor like that of radishes is perceptible. The species belongs to the section Indusiati. The variety differs from the type especially in its strongly developed veil.

Poria attenuata *Pk.* var. subincarnata *n. var.*

This differs from the typical form in the paler color of the pores. It grows on hemlock bark and forms small patches rarely more than one inch in diameter. Alcove. September. *Shear.*

Septoria Cucurbitacearum *Sacc.*

A form of this fungus sometimes develops on the fruit of squashes. It produces small orbicular whitish spots on which the perithecia develop. The epidermis on these spots sometimes ruptures in a stellate manner. Menands. November.

Septoria Dentariæ *Pk.* var. arida *n. var.*

Living leaves of *Dentaria diphylla.* Pierrepont Manor. June. Spots definite, arid, whitish. Otherwise like the type.

(E.)

NEW YORK SPECIES OF CAREX.

By E. C. Howe, M. D.

The object of the following monograph of the species of Carex hitherto found in the State of New York is to aid young botanists in acquiring a knowledge of these interesting but too often much neglected plants. It has been too much the custom to omit the study of them until nearly every other genus has received attention. That beginners in the study of botany should distrust their ability to cope with these plants is not strange, since both teacher and text book have sometimes warned them to "beware of this extremely difficult genus, as none but the most experienced should approach it." This should not be so. There certainly are difficulties to be encountered, but they are no more formidable than those with which we meet in other genera, such as Aster, Euphorbia and Aspidium. If we except two or three groups containing two or three species each, and certain allied forms which have been considered good species in one generation and mere varieties in another, and which are now considered species by one botanist and varieties by another, if we except these which are less than a dozen in number, there are no serious difficulties in the study of the carices.

Specimens with mature fruit are desirable and even necessary for the satisfactory identification of species of this genus, for the descriptions are based upon such specimens, the fully developed spikes, perigynia and scales furnishing the most distinctive and reliable specific characters. The perigynia, or a few of them, should be removed from the rachis for study, for in this way their characters are more clearly seen. Ordinarily the achenia or seeds are neglected, but in some instances they furnish important distinguishing characters, and will be a valuable aid to a beginner in deciding upon the identity of certain closely related species. C. lupulina and C. lupuliformis are cases of this kind.

In the descriptions that follow, the plan is to define the characters of each species fully, clearly and minutely without reference to its likeness to other species. This has been done even at the risk of being thought unnecessarily repetitious. Measurements of the different parts of the plant have been freely given, and it is believed that in many instances they will be found a most satisfactory aid in the identification of the species.

Varieties are compared with the typical form of the species.

Carex *L.*

Flowers of two kinds, one staminate, consisting of three stamens in the axil of a scale-like bract (scale), the other pistillate, consisting of a pistil terminating in two or three stigmas and forming in maturity a dry hard lenticular or triangular seed (achenium) enclosed in a thin or membranous seed vessel (perigynium), which is also in the axil of a scale-like bract; both kinds of flowers arranged in spikes which are staminate (sterile) when composed of staminate flowers, pistillate (fertile) when composed of pistillate flowers, and androgynous when composed of both kinds. The spikes may be either sessile or borne on a peduncle, and they are usually subtended by scale-like or foliaceous bracts. When both kinds occur on the same plant the inflorescence is monœcious, on different plants, diœcious. The stems or culms are triangular and solid; leaves three-ranked, narrow, linear or setaceous, often rough on the margins, clasping the stem at the base and forming a closed sheath around it.

Perennial herbs growing chiefly in wet, moist or swampy places, and most of them perfecting their fruit in the first half of the summer season. They may be distinguished from the true grasses by their triangular solid stems, their closed sheaths and their seed being wholly and singly enclosed in a thin seed vessel.

For the sake of brevity the following characters have been employed:

The sign of degrees (°) stands for "foot" or "feet."

The sign of minutes (′) stands for "inch" or "inches."

The sign of seconds (″) stands for "line" or "lines."

The dash between two numbers stands for "to," and with the numbers indicates the degree of variation in measurement.

SYNOPSIS OF THE GROUPS.

A. Staminate and pistillate flowers in small globose or oblong androgynous spikelets placed one above the other and forming clusters or interrupted spikes or heads at the summit of the culm, or panicled heads (decompound) in 3, 4 and 5. Sometimes the lower spikelets in several species are branched. ANDROGYNEÆ.

* Stigmas 2; achenium lenticular.

† Spikelets staminate at the apex, pistillate below.

Spikelets 2–5 flowered, capitate or in a short interrupted spike; *root-stock extensively creeping.* 1–2.

Spikelets in a close or open panicle or densely clustered in an interrupted spike 1′–4′ long or more; perigynia *blackish-brown or tawny.* 3–5.

Spikelets contiguous above, separate below, or all contiguous, sometimes the lower ones compound; perigynia lanceolate, *without a distinct margin*, divergent. 6–7.

Spikelets approximate above, separate below, or all contiguous, (capitate in 10); perigynia *with a distinct margin*, *widely divergent or reflexed at maturity.* 8–13.

† Spikelets staminate at the base, pistillate above.

Spikelets 3–8, 3–5 flowered, the upper ones approximate or subdistinct, the lowest distinct or remote (capitate in 15), or 12–30 flowered and disposed in an interrupted spike 1½′–2½′ long, *silvery green and shining;* perigynia spreading but *not reflexed.* 14–17.

Spikelets 3–8, the upper 2 or 3 approximate, separate below, or all contiguous (spikelet single in 18); perigynia slightly concave, *widely divergent or reflexed at maturity*; plants *bright green becoming yellowish.* 18–21.

Spikelets 3–15 or more, aggregated or approximate, or the upper contiguous and the lower separate (clustered in 31): perigynia concave, thin, mostly wide winged-margined, the tips erect or spreading, *not reflexed.* 22–31.

† Staminate and pistillate flowers variously situated; spikelets often wholly sterile or wholly fertile. 32–34.

* Stigmas 3; achenium triangular.

Flowers borne in a *short spike* or *head*, staminate at the apex, pistillate below; pistillate *small*, *caducous*, the staminate mostly conspicuous. 35–36.

Pistillate scales *green and leaf-like*, *persistent*, the lowest as long as the spike; perigynia globular, with a long slender beak. 37–39.

B. Staminate and pistillate flowers disposed in separate spikes on the same culm or plant (monoecious), or on separate plants (diœcious), the former frequently androgynous.—Carex proper.

* Stigmas 2 (rarely 3); achenium lenticular.

Plant *diœcious.* Sterile spike linear, 5″ long or less; fertile spike 3″–5″ long, densely flowered; perigynia oblong, reflexed at maturity. 40.

Sterile spikes 1–4, stalked or sessile; fertile spikes 2–5, erect or recurved, sessile or short stalked, densely or subdensely flowered; perigynia with a short point or pointless; scales *blackish-purple or reddish-brown, not awned.* 41–46.

Fertile spikes 2′–4′ long, pendulous on stalks 1′–2′ in length or more; perigynia slightly turgid, scales *light brown with long rough awns.* 47–48.

* Stigmas 3; achenium triangular.

† Perigynia biconvex, without a beak.

Sterile spike single, (rarely 2 or 3) stalked; fertile spikes 2–4 on *filiform drooping peduncles*, the upper approximate, the lower sometimes distant; perigynia with a minute point or pointless; scales blackish-purple or brown. 49–51.

Spikes 2–5, the upper half or more of the terminal one fertile, sterile below, the others fertile, *sessile or short-stalked*, *erect*, green or dark purple; perigynia smooth or pubescent. 52–54.

† Perigynia obtusely 3-angled, not compressed, mostly contracted at each end; obtuse or acutish at the apex.

Sterile spike cylindrical, usually fertile at the apex; fertile spikes 2–5, linear or cylindrical, densely or loosely flowered, on *drooping or suberect partly included peduncles* (sessile or short-peduncled and mostly erect in 55); bracts leafy, *usually surpassing the culm;* perigynia ovate-oblong or elliptical, nerved, contracted at each end, the apex entire or pointed and notched. 55–58.

Sterile spike single (sometimes 2 or 3 in 59), clavate, *long-peduncled*; fertile spikes 2–4, *sessile or stalked*, *erect*, mostly distant, or remote (the upper 2 approximate in 60); bracts *shorter than the culm* or about equaling it in 59 and 63; perigynia with a short terete beak in 61. 59–63.

Sterile spike *short-stalked or sessile;* fertile spikes 2–5, cylindrical or oblong, densely or subdensely flowered, the upper 1 or 2 usually sessile at the base of the sterile spike, the others subdistant or the lowest remote, stalked and erect (all approximate in 64); bracts *leafy, longer than the culm;* perigynia oblong, obovate, or ovate, nerved, without a beak. 64–67.

† Perigynia with a distinct beak.

Sterile spike long or short-stalked; fertile spikes loosely 2–8 flowered, the upper 1 or 2 sessile near the base of the sterile spike, the others distant, sometimes remote, erect, subflexuose; perigynia densely striate-nerved, with a straight or oblique beak; leaves and bracts thin, bright or glaucous green. 68–69.

Sterile spike clavate or linear, sessile or stalked; fertile 2–5, usually the upper one or two sessile at the base of the sterile spike, the others scattered, the lowest often remote, all on short or long peduncles and erect, or sometimes the one or two lower ones spreading; densely or loosely flowered; bracts leafy, partly sheathing, mostly exceeding the culm: perigynia ovate, obovate or suboval, nerved, with a short, abruptly bent, or long tapering recurved bifid beak (the latter short and barely curved in 74; fruit easily detached. 70–74.

†† Perigynia acutely angled.

Sterile spike clavate, short or long-peduncled; fertile spikes 3–5, mostly scattered *on long filiform drooping or erect-spreading peduncles.* Leaves narrow, three-veined. 75–76.

Sterile spike clavate, stalked; fertile spikes 2–5, mostly distant *on erect, partly or wholly included stalks*, 3–8 flowered; bracts as long as the sheaths or obsolete. Leaves 3″–12″ wide or more, three-veined, (narrow and one-veined in 80). 77–80.

†† Perigynia obtusely angled.

Sterile spike linear, ½″ wide; fertile spikes small, erect or drooping; bracts obsolete, or leafy and equaling their sheaths; perigynia *minute, light or olive-brown.* Leaves setaceous, or involute when old 81–82.

Plant *diœcious* Fertile spike cylindrical, dark purple; perigynia ovate, *densely pubescent.* A mountain species. 83.

Sterile spike clavate or linear, sessile or short-peduncled; fertile spikes 1–5, the upper one or two near the sterile, the others subapproximate or sometimes subdistant and the lowest remote, (umbellate in 84), 3–10 densely or subloosely flowered, globose or short oblong, mostly sessile; perigynia subrotund, suboval, obovate or ovate, *densely or lightly pubescent*, with an abrupt bifid beak; bracts mostly scale-like, sometimes short leaf-like, (perigynia acutely angled in 93.) 84–93.

†† Perigynia slightly inflated.

Sterile spike clavate or linear, stalked, often fertile at the apex; fertile spikes 2–4, straight or flexuose, cylindrical or subclavate, densely or loosely flowered; bracts leaf-like, the lowest sheathing, mostly exceeding the culm, (the upper ones setaceous in 98); perigynia three-angled, ovate or spindle-shaped, with a long or short tapering beak. 94–98.

†† Perigynia moderately inflated.

Sterile spikes 1–5, stalked or sessile; fertile spikes 2–5, cylindrical or ovoid, densely flowered, approximate above and distant and remote below, short peduncled or sessile, erect or the lower sometimes long-peduncled and spreading; bracts shorter or longer than the culm; perigynia ovoid or oblong-conical, nerved, densely hairy or smooth, with a short bidentate beak; mostly coriaceous in texture, (granular dotted and thin in 103). 99–106.

Sterile spikes 1–5, stalked; fertile spikes 2–5, cylindrical, densely or subdensely flowered, erect on short stalks or sessile; perigynia ovate lanceolate, smooth or hairy, with a long tapering *deeply-cleft beak*, the awn-like teeth mostly recurved; perigynia *not reflexed.* 107–109.

Sterile spike single; fertile spikes 2–4, cylindrical, on long drooping peduncles; perigynia narrowly lanceolate, with a long deeply-cleft beak, the awn-like teeth spreading or recurved; perigynia *strongly reflexed* at maturity. 110–111.

†† Perigynia much inflated.

Sterile spike solitary, (very rarely 2), stalked; fertile spikes 2–5, cylindrical, densely flowered, the upper 2 sessile or nearly so, ascending, the others subdistant, short-stalked and horizontally spreading or all separate on drooping peduncles, the lowest sometimes remote, 2′ long or more, 5″–6″ wide; perigynia *ovoid*, nerved, with a long bifid beak, *horizontally spreading* at maturity, *having a comose appearance.* A mountain species (114) has 1–3 straw-colored spikes, sessile, erect or ascending, 3″ wide, with ascending perigynia. 112–114.

Sterile spike long and sometimes long-peduncled; fertile spikes 1½′–2½′ long, 9″–12″ wide on stiff erect stalks or sessile; perigynia *ventricose and stipitate*, 6″ in length or more. Spikes *hop-like in aspect.* 115–116.

Sterile spike single (sometimes 2 in 122), stalked or sessile; fertile spikes 1–6, globular, ovoid or oblong, compactly or loosely flowered, the upper two sometimes contiguous, the others separate, or all distant or remote, sessile or pedunculate, rigidly erect, bright or yellowish green; bracts with or without sheaths, mostly surpassing the culm; perigynia ovoid or lanceolate from an ovate base, or awl-shaped, nerved, smooth, with a *long tapering bidentate, or short notched beak*, horizontally spreading or reflexed at maturity. 117–125.

Spikes 1–4, rarely 5, the *upper half or more of the terminal one fertile*, sterile below, the others all fertile, cylindrical, 9″–12″ long, 4″–6″ wide, stalked, erect; perigynia with *a slender beak longer than the body*, horizontally spreading when mature. 126.

Sterile spikes 1–5, clavate or cylindrical, stalked, sometimes androgynous; fertile spikes 1–5, clustered or scattered, or the upper 2 approximate, the others subdistant or distant, pedunculate or sessile, mostly erect or ascending (pendulous and loosely flowered in 133) the lowest sometimes spreading, densely flowered, frequently sterile at the apex, cylindrical or oblong; perigynia globular-ovoid or ovate-lanceolate, nerved or nerveless, mostly much-inflated and thin, straw-colored or tawny, ascending, widely divergent or reflexed, with a tapering bidentate beak, the latter needle shaped in 133. 127–133.

DESCRIPTIONS OF GROUPS AND SPECIES.

A. Staminate and pistillate flowers intermingled in small globular or oblong spikelets which form clusters, heads or spikes or are panicled in 3, 4 and 5.

Stigmas 2; *achenium lenticular.*

Spikelets staminate above, pistillate below.

Inflorescence simple, both staminate and pistillate flowers found in the same spike or spikelets.

Spikelets 2–6, 2–5 flowered, in a short interrupted spike, or aggregated in an ovoid head; perigynia ovate, nerved, of a thick coriaceous texture, with a minute entire or notched point; bracts scale-like, the lowest bristle pointed; rootstock extensively creeping.

Culms slender, leafy at base; spikelets distant	tenella.
Culms rigid, naked; spikelets capitate	chordorhiza.

1. Carex tenella *Schk.*

Stems 6′–18′ high, slender, erect or spreading, rough above; leaves about equaling the culm, ½″ wide or less, thin, slightly rough on the margins, the loosely tufted radical leaves longer, about 1″ wide, suberect or spreading; spike ½′–1′ long; spikelets 2–4, separate, the lowest usually with a bristle-shaped bract ½′–1′ in length, 1–4 flowered, the highest rarely 6-flowered; perigynia ovate or elliptical, subterete, 1½″ long, prominently finely nerved, the apex tipped with a short entire point; scale ovate, acute or mucronate, thin, white, about one-half the length of the perigynium.

Readily distinguished by the naked or unprotected appearance of the well-rounded perigynia.

A small form occurs which is 4′-6′ high, rather rigid, with 3–5 spikelets and the bristle shaped bract of the lowest spikelet often wanting.

Swamps and wet places. Not rare. June.

2. Carex chordorhiza *Ehrh.*

Stems 6′–18′ high, erect, smooth, naked, or the prominent basal sheaths terminating in narrow blades ½′–1′ in length; leaf-stems branching and rooting at the base, springing from the large creeping rootstock, 3′–5′ high; leaves variable in length, the lower ½′–2′ long, those above, usually partly tufted, 3′–6′ in length, erect or spreading, 1″ wide or less, flat or involute, rough margined; spikelets 3-5, aggregated in an ovoid head 3″–6″ long, brown; perigynia elliptical-ovate, biconvex, nerved, 1½″ long, contracted into a short entire or notched beak about the length of the ovate, acute brown scale; bracts scale-like and inconspicuous except the lowest which is sometimes short setaceous.

Easily determined by its chord-like, extensively creeping rootstock.

Sphagnous swamps and swampy shores of lakes and streams. Rare. July. Herkimer, Oneida and Seneca counties, and boggy margins of lakes in the North woods *Paine's Catalogue.*

Inflorescence branched, the spikelets panicled or densely clustered.

	Perigynia biconvex, blackish, shining.	1
	Perigynia compressed-ovate, not shining	vulpinoidea.
1	Perigynia ovate, stipitate	teretiuscula.
1	Perigynia obovate, sessile	decomposita.

3. Carex teretiuscula *Good.*

Stems 18′–30′ high, slender, erect, obtusely angled, rough near the spike; leaves usually shorter than the culm, 1″–1½″ wide, somewhat involute when dry, rough on the edges; spike panicled, 1′–2′ long, brown; spikelets small, crowded on short appressed branches, or the 2 lower sometimes distinct; bracts scale-like, acuminate, the lowest bristle pointed; perigynia stipitate, somewhat thick and corky, ovate, faintly nerved at the truncate base, dark-brown and shining, tapering above into a slender, bifid, greenish beak, nearly covered by the ovate acute brown scale.

The small, short-stalked, ovate, acuminate, shining perigynia, as well as the short, appressed branches of the narrow panicle distinguish this species. Not rare in swampy fields. June.

Var. ramosa *Boott.* Head longer and somewhat nodding, spikelets compound, sometimes on appressed branches, looser or more scattered. Albany county.

4. Carex decomposita *Muhl.*

Stems 20′–36′ high, flaccid, erect or spreading, smooth; leaves exceeding the culm, stiff, channeled below, 2″–3″ wide, rough-margined, filiform at the end; spike decompound, 2′–5′ long, dark or sometimes blackish-brown when mature; spikelets numerous on spreading branches, the lower of which are distinct or sometimes separated ⅓′–¼′ or more and 1′–2′ long, those above shorter and less distant, gradually tapering to the dense apex; bracts of the long branches green and filiform, the others scale-like and awn-pointed; perigynia sessile, thick, corky, rounded or obovate, biconvex, nerved on both sides, dark-brown and shining, abruptly contracted into a short bifid beak; scale thin, ovate, pointed or cuspidate, tawny or brownish.

This species differs from others of similar growth in its thick, nearly round stem, in its stiff, long, slender-pointed leaves, and especially in its panicled spikelets.

Swamps. July. Very rare or local. Yates and Seneca counties. *Paine's Catalogue.*

5. Carex vulpinoidea *Mx.*

Stems 1½°–2½° high, firm and erect, acutely angled and rough above the smooth terete base; leaves rough-margined, 1½″–2″ wide, slender-pointed and often surpassing the culm; spike ½′–4′ long, dull brown or sometimes with a tinge of green; spikelets clustered on branches 3″–9″ long, usually densely aggregated above, in the lower half the clusters are mostly 3″–6″ apart;

bracts prominent, bristle-form or the lower filiform and sometimes exceeding the culm; perigynia ovate-acuminate or ovate-lanceolate, flat beneath, 2–3 nerved above, contracted into a narrow bifid rough margined beak, about as long as the ovate awn-pointed scale, widely divergent at maturity.

A coarse, homely species, somewhat variable, but the main characters are too manifest to be confounded with any other species.

Common in swamps, ditches and fields. June.

Inflorescence simple or the lower spikelets sometimes branched; perigyna plano convex, stipitate, thin, spongy at the base, marginless.

Spikes brown, perigynia compressed-ovate	alopecoidea.
Spikes green, perigynia teretish-lanceolate	stipata.

6. Carex stipata *Muhl.*

Stems 1½°–3° high, erect, flaccid, the acute angles rough above the middle; leaves about as long as the culm, 1½″–2½″ wide, smooth, rough-margined; spikes 1′–3′ long or more, light green; spikelets 6–15, ovoid or oblong, contiguous above, the lower separate and sometimes branched, the lowest often ½′–1′ in length; bracts bristle-form and inconspicuous or the lowest ¼′–1′ long; perigynia subterete, lanceolate, prominently nerved, 2″ long, tapering from a stalked truncate base into a slender rough-margined bifid beak twice longer than the body, widely diverging at maturity; scale lanceolate, thin, light brown, about one-half the length of the perigynium.

Very easily determined by the fruit, or by the color and bristly appearance of the spikes.

Everywhere common in swampy fields. June.

Var. crassicurta *Peck n. var.* Spikelets 7–12, aggregated in an ovoid or oblong head 9″–12″ long, the perigynia horizontally spreading or somewhat deflexed at the base, giving the spike an unusually bristly appearance. This well-marked variety is of a deeper green, and has a more rigid aspect than the type, whereby it may be readily recognized.

Var. subsecuta *Peck n. var.* Spikes 2½′–3½′ long; spikelets 9–12, globular, or the lower short-oblong, all conspicuously distinct, pale green, mostly smaller than the type, but otherwise agreeing with it.

7. Carex alopecoidea *Tuckm.*

Stems 18′–30′ high, erect, acutely angled, flaccid, rough on the angles above; leaves about the length of the culm, erect-spreading, 1½″–2½″ wide, rough beneath and on the margins; spike ½′–1½′ long, brown; spikelets 6–10, mostly aggregated, or the lower 2 or 3 sometimes distinct, the lowest sometimes with a few-flowered branch, ovoid or oblong, 2½″–3″ long; bracts bristle-shaped, the 1 or 2 lower ¼′–1′ in length; perigynia compressed-ovate, stalked and truncate or subcordate at the base, obscurely nerved on the upper surface, tapering into a flat rough-margined bifid beak, more or less divergent at maturity; scale ovate, acute or cuspidate, brown with whitish margins above the middle, nearly covering the brown, or sometimes greenish, perigynium.

Distinguished by its brown spike and compressed, stalked, obscurely nerved fruit. Not common. Mostly in the central and western part of the State; rare in the eastern part. June, July.

Spikelets more or less aggregated, light or deep green (brownish in 13 when mature); perigynia compressed, sessile, distinctly margined.

	Leaves 2″–4″ wide	1
	Leaves less than 2″ wide	2
1	Spikelets distinct below	sparganioides.
1	Spikelets contiguous or aggregated	cephaloidea.
2	Spikelets densely aggregated in an ovoid head	cephalophora.
2	Spikelets contiguous in an oblong head or approximate above, distinct below	3
3	Perigynia orbicular-ovate	Muhlenbergii.
3	Perigynia ovate-lanceolate	4
4	Beak of perigynia rough-margined	rosea.
4	Beak of perigynia smooth	retroflexa.

8. Carex sparganioides *Muhl.*

Stems 18′–36′ high, erect, robust, smooth, except near the top; leaves numerous, light green, smooth except on the edges, 2″–4″ wide, shorter or longer than the culm, the longest with filiform extremities; spikes 2½′–6′ long, strict; spikelets 5–12, the 3 or 4 upper globose, aggregated, the others more or less oblong, ¼′–1′

apart, the 2 or 3 lower 4″–8″ in length, 2½″–3″ thick, sometimes branched, slightly spreading on the straight or flexuose rachis; bracts bristle-shaped, inconspicuous; perigynia 1½″ long, broadly ovate, margined, nerveless, tapering or contracted into a short rough-edged, bidentate beak, usually divergent but not reflexed at maturity; scale thin, white, ovate, acute or cuspidate, about one-half as long as the perigynium.

A reduced form, 18′–20′ high, with closer spikelets, usually occurring in glades and on shaded rocky banks, is Var. minor *Boott.* This robust, handsome species is readily known by its ample graceful foliage and large strict spikes.

Common in rich soil about woods and in copses. June, July.

9. Carex cephaloidea *Dew.*

Stems 2°–3° high, slender, erect or weak and somewhat spreading, flaccid, the upper half rough on the angles, smooth below; leaves shorter than the culm, 2″–3″ wide, thin, smooth, rough-margined, dark green; spikes ½′–1′ in length, rarely capitate; spikelets 4–7, globose, contiguous, the two lower sometimes distinct or 2″ apart, 2½″ long and broad, ascending; bracts inconspicuous; perigynia 1½″ long or more, nerveless, dark green, soft, ovate-lanceolate, tapering into a flat, rough-edged, bidentate beak, spreading at maturity; scale thin, white, short-ovate, blunt, mucronate, about half as long as the perigynium; achenium obovate; style slightly enlarged at base.

Moist or swampy places, mostly in woods or copses. June, July.

In the eastern part of the State this species is less common than the preceding one to which it has sometimes been added as a variety, but from which it is easily separated by its spikelets being collected in an oblong head. From C. Muhlenbergii it is distinguished especially by its broader leaves.

10. Carex cephalophora *Muhl.*

Stems 10′–30′ high, stiff, erect, smooth or a little rough near the head, often branched at base as if stoloniferous; leaves rather stiff, the longest sometimes exceeding the culm, gradually tapering to a setaceous point, 1″–1½″ wide, smooth or the margins slightly rough; spike capitate, ovate or short oblong, 3″–9″ long, pale green; spikelets 4–6, globose, densely aggregated, spreading; bracts setaceous, 3″–6″ long, the upper mostly concealed by the crowded spikelets; perigynia 1½″ long, firm, sometimes faintly nerved near the distinct margin, round-ovate, tapering into a short, rough-edged, bidentate beak, widely spreading at maturity; scale white, thin, ovate, with a rough-awned point, a little smaller than the perigynium; achenium round-ovate, the short style with a conic base.

This is one of our commonest species and can not be confounded with any other. It grows in open fields and in and about woods and copses. June.

From forms of C. Muhlenbergii, which sometimes approach it in the shape and size of the head, it is easily separated by its smaller perigynia.

11. Carex Muhlenbergii *Schk.*

Stems 15′–30′ high, firm, erect, triangular, rough on the angles near the head, smooth below; leaves shorter than the culm, 1½″–2″ wide, open, flat, or sometimes slightly involute, smooth except on the margins, the ends slender and setaceous; spike ½′–1½′ in length, 3″ broad or more, green; spikelets 4–9, globose, contiguous, 2″–3″ long, spreading or the 3 upper erect; bracts bristle-shaped, conspicuous, 3″–6″ long; perigynia 1½″–2″ long, firm, broadly round-ovate, strongly nerved on both sides, terminating in a short, rough-margined, bidentate beak, spreading but not reflexed; scale ovate, pointed or rough-awned, about as long as the perigynium; achenium round-ovate, the short style with a conical base.

Common; growing in a variety of soil, but especially in light sandy or sterile places. In some forms the head is ovate, resembling that of the preceding species. June.

Var. enervis *Boott.* Differs from the type in its slender, spreading, sometimes reclining stems, its soft leaves 1″ wide, and its shorter spike and fewer-flowered spikelets, its smaller, less firm, exactly ovate, nerveless perigynia, the scale thin, mostly smooth-pointed or mucronate. This slender form is, perhaps, peculiar to south-eastern New York (Westchester county), where it inhabits open and slightly shaded grounds. The form which differs from the type only in its nerveless perigynia (Gray's Man.) occurs farther north. Rensselaer county.

12. Carex rosea *Schk.*

Stems usually clustered, 1°–2° high, slender, erect, smooth; leaves shorter or longer than the culm, ½″–1″ wide, smooth, rough-margined; spikes 1′–1¾′ long, green; spikelets 4–6, globose, the 2 or 3 upper contiguous, the others 2″–9″ apart, 5–12 flowered; bracts bristle-shaped or filiform, extending from an ovoid or deltoid base ¼′–2½′; perigynia lanceolate, thin, nerveless, gradually tapering to a flat rough edged bidentate beak, twice longer than the broad blunt thin white scale; achenium ovate, apiculate.

The base of the beak above is usually clearly defined by an abrupt depression of the perigynium. The fruit is strongly divergent or reflexed at maturity.

Very common and variable. Woods and open places. June.

Var. radiata *Dew.* Culms almost capillary, 6′–12′ high, the leaves often longer, ½″–1″ wide, the spikelets 2–4 flowered, the 1 or 2 lower often distant, each subtended by a filiform bract exceeding the culm; perigynia oval-lanceolate, erect or spreading; scale broadly ovate, obtuse or acutish, sometimes mucronate.

Var. minor *Boott.* This differs from the last in its larger and longer culms, and its erect or ascending perigynia, their scales ovate, acute or mucronate, or sometimes rough-cuspidate.

Var. pusilla *Peck, n. var.* Stems 3′–8′ high, stiff, smooth; leaves a little longer than the culm, ½″ wide, rough-margined; spikelets 2–4, the upper 2 contiguous, the others ¼′ apart, the lowest usually with a setaceous bract ½′–1′ long, 3–9 flowered; perigynia ovate-oblong, about one-third longer than the ovate obtuse or acutish scale, divergent but not reflexed.

Var. staminata *Peck, n. var.* Stems 15′–20′ high, slender and somewhat spreading; leaves ½″–¾″ wide; spikelets 1–5 flowered, each with the staminate portion conspicuous and persistent, the mature perigynia horizontally spreading or reflexed.

13. Carex retroflexa *Muhl.*

Stems tufted, 6′–18′ high, firm, erect, smooth; leaves mostly shorter than the culm, ½″–1″ wide, smooth, rough-margined; spikes 4″–10″ or more in length, light green, becoming brown when mature; spikelets 3–8, globose, 3–9 flowered, the upper contiguous, the 1 or 2 lower sometimes 2″–3″ apart, the lowest with a setaceous or filiform bract 3″–2½′ long; perigynia ovate-acuminate or lanceolate, with a thick, spongy base, nerveless, tapering into a smooth-margined bifid beak, a little longer than the ovate obtuse or pointed brown scale, reflexed at maturity; achenium broadly ovate, apiculate.

Separated from the last by its more rigid culms, its more aggregate spikelets, and by its smooth-beaked fruit.

Open woods and fields. Infrequent. June. It occurs chiefly in the southern central and western parts of the State. It is rare or wanting in the northern and eastern parts.

Spikelets pistillate above, staminate at the base.

Leaves mostly narrow, soft and spreading, shorter than the culm; spikelets 3–8, approximate or more or less distant, (capitate in 15), silvery-green; perigynia plano-convex, ovate, somewhat coriaceous or thickened at the base, turning silvery or brownish when mature; bracts scale-like or bristleform.

	Spikelets commonly 10–30-flowered or more	canescens.
	Spikelets commonly 2-5-flowered	1
1	Spikelets aggregated in a dense head	tenuiflora.
1	Spikelets not aggregated	2
	2 Leaves less than 1″ wide	trisperma.
	2 Leaves more than 1″ wide	Deweyana.

14. Carex trisperma *Dew.*

Stems 1°–2° high, very slender, spreading, sometimes prostrate, smooth; leaves shorter than the culm, about ½″ wide, smooth except the margins, flat, soft and thin; spikelets 2–3, the 2 upper ¼′–1′ apart or all 1′–2½′ distant, the lower with filiform bracts ½′–2½′ long, the highest sometimes with a setaceous bract 3″–5″ in length, 2–4 flowered; perigynia oblong-ovate, prominently finely nerved on both sides, thick or coriaceous, suberect, terminating in a short entire beak; scale oblong-ovate, pointed or obtusish, usually shorter than the perigynium, achenium elliptical, the base tapering.

Swamps and wet places. Common. June, July.

A form is sometimes found in sphagnous swamps with almost filiform leaves.

15. Carex tenuiflora *Wahl.*

Stems 6′–18′ high, slender or capillary, erect or spreading, mostly naked, smooth; leaves smooth, flat and involute, ½″–1″ wide, usually shorter than the culm; spike capitate, silvery-green, becoming whitish at maturity; spikelets 2–4, 3–5 flowered, aggregated in an ovoid head, or rarely the lowest 2″–3″ distant; bracts bristle-form, mostly shorter than the spike; perigynia ovate-oblong, thick, nerved, light-brown, beakless, nearly covered by the ovate-oblong whitish scale.

Stems tufted and branched at base, the shortest often firm and erect, the longest flexile.

The silvery-green spikelets collected in a head distinguish this very rare or local species. It has been reported from Oneida and St. Lawrence counties. June.

16. Carex Deweyana *Schw.*

Stems 1°–2° high, slender, erect or diffuse, smooth; leaves numerous, smooth, slightly rough-edged, 1″–1½″ wide, shorter than the culm, pale green becoming yellowish with age; spikes 9″–2′ long, flexuous; spikelets 2–4, the 2 or 3 upper ones approximate, the lowest distant or subdistant, 2–6 flowered, silvery-green; bracts bristle-shaped or filiform, the 2 lower sometimes exceeding the culm; perigynia oblong-ovate, acuminate, obscurely nerved, thin, 2″ long, with a long, rough-margined, bidentate beak; scale thin, whitish, oblong-acuminate or rough awned, as long as the perigynium.

Woods and open places. Common. June.

Easily recognized by the somewhat bristly aspect of the soft silvery spikelets and the somewhat drooping or flexuous character of the spike.

17. Carex canescens *L.*

Stems 15′–30′ high, erect, rough above the middle; leaves glaucous, smooth, the margins rough, 1″–1½″ wide, the extremities filiform, shorter than the culm, or the radical ones sometimes exceeding it; spikes 1¼′–3′ long; spikelets 4–8, densely 10 to 30 flowered, ovoid or globose, the 2 or 3 upper ones approximate, the others 3″–12″ apart, all more or less contracted at the base, silvery-green; bracts scale-like, sometimes with a bristle-shaped prolongation, or the lowest setaceous or leaf-like; perigynia ovate, nerved at the base, minutely punctate, whitish, tapering into a short bifid or entire beak, divergent at maturity, a little longer than the ovate, acute or obtuse scale; achenium elliptical.

Swamps and low wet places. Very common. May, June.

Readily determined by its silvery spikes and glaucous-green foliage. Small, slender forms with fewer flowered spikelets, but glaucous foliage approach the following variety. A form occurs in Suffolk county in which the terminal spikelet is wholly staminate or bears but few perigynia.

Var. vulgaris *Bailey.* Differs from the type in its more slender, erect, or diffuse stems; its narrower, green, not glaucous, leaves; its fewer and smaller spikelets, with fewer flowers, and in its green, horizontally-spreading perigynia with more pronounced beaks and shorter scales.

Var. alpicola *Wahl.* Stems 6′–15′ high, firm, erect or spreading; leaves green, 1″ wide; spikelets 3–5, globular, 6–15 flowered, the lowest sometimes with a filiform bract 2–2½ long, sometimes the next above with a bristle-shaped bract ½′ or more in length; perigynia green with brown spots or tawny; otherwise as in the preceding. A lowland form has capillary stems 15′–20′ high, leaves ½″ wide or less; perigynia green slightly dashed with brown.

Spikelets 3–8 (single in 18) ovoid or oblong, approximate above, interrupted below, or all scattered; perigynia slightly concave, rough or smooth-margined, nerved or nerveless, usually strongly reflexed at maturity; bracts bristle form or rarely the lowest leaf-like. Plants rather rigid, green, often becoming yellowish with age. In all the species of this group the terminal spikelet appears to be stalked, the lower part being much contracted and clothed with the scales of the staminate flowers.

Perigynia ovate, small 1
Perigynia ovate or ovate-lanceolate, large 2
1 Spikelets scattered; perigynia with a short smooth beak... seorsa.
1 Spikelets contiguous or approximate, perigynia rough-beaked .... interior.
2 Spikelet single, sometimes wholly fertile or wholly sterile. exilis.
2 Spikelets approximate or scattered .... sterilis.

18. Carex exilis *Dew.*

Stems 1°–2° high, firm, erect or suberect, rough above; leaves involute, stiff, smooth, as long as the culm, or much shorter; spikes densely flowered, cylindrical or short oblong, contracted at the base by the numerous scales of the staminate flowers, sometimes wholly staminate or wholly pistillate, ¼′–1′ long, light brown; perigynia ovate-lanceolate, few-nerved above, spreading, tapering to a flat, rough-margined bidentate beak, a little longer than the ovate-lanceolate scale.

Cold swamps in the northern and eastern parts of the State; also on Long Island. Rare. June, July.

This is a very distinct and easily recognized species. Sometimes an additional spike or two may develop at the base of the usual one.

19. Carex sterilis *Willd.*

Stems 15′–30′ high, firm, erect, rough above; leaves rough on the edges, longer or shorter than the culm, 1″–2″ broad, sometimes involute above; spike ½′–1½′ long, strict or flexuous, yellowish-green or tawny; spikelets 3–6, globose, 2″–3″ in length and thickness, 1½″–3″ apart, or the upper 2 or 3 contiguous, the terminal contracted below and stalk-like from the several staminate scales, or sometimes all staminate or again each spikelet partly or wholly sterile; bracts scale-like or bristleform, the latter ¼′–1′ in length; perigynia variable, ovate or evenly lanceolate, subcordate, one or both surfaces nerved, contracted into a short or long, narrow, rough-margined, sharply toothed beak, widely divergent at maturity; scale ovate, obtuse or acute, whitish or brown, shorter than the perigynium; achenium ovate.

Culms with a single sterile spike frequently occur, and more rarely with the lower half of the spike fertile. The perigynia are mostly thin, but sometimes spongy at the base, strongly divergent at maturity, their bristling tips occasionally bent or deflexed.

Swamps and wet places. Very common. May, June.

Var. excelsior *Bailey.* Differs from the type in its taller, more slender culms, mostly 2°–2½° high; its larger, greener, more scattered spikelets, 3″–4″ long; its larger perigynia prominently nerved on both sides, and in its oblong-ovate, acute or pointed scale.

This and the following varieties constitute the species C. stellulata *L.* of Gray's Man., 5th ed.

Common in swamps and wet meadows.

Var. cephalantha *Bailey.* Resembles the last, but has stouter, stiffer culms, 1°–2° high; spikes 1½′–2′ long; spikelets 5–8, 15–30 flowered, 3″–4″ long, aggregated or approximate, sometimes becoming yellowish with age; perigynia horizontally spreading at maturity.

Long Island. May, June.

Var. æquidistans *Peck n. var.* Stems 12′–30′ high, rough, stout, or rarely slender; spikes 1½′–2½′ long; spikelets 4–6, 15–30 flowered, globular or oblong, 3″–6″ apart; perigynia horizontally spreading, usually the lower ones deflexed.

Wet places. Oneida and Essex counties. June. July.

Var. angustata *Bailey.* Stems 3′–12′ high, very slender, wiry, erect, the setaceous or flat leaves less than ½″ wide; the 2–4 spikelets 2″–3″ apart, 2–6 flowered, the terminal erect or oblique; perigynia lanceolate, nerved, tapering into a long, slender bifid beak much longer than the scale. Easily recognized by its spikelets. (C. stellulata var. angustata *Carey*).

In swamps and wet meadows. Infrequent except in the northern part of the State where it is common in swamps and wet places. June, July.

20. Carex interior *Bailey.*

Stems 8′–20′ high, erect, rough near the spike; leaves mostly shorter than the culm, ½″–1″ wide, sometimes involute when dry; spikes 3″–6″ in length, greenish brown; spikelets 2–4, contiguous, or 2″–3″ distant, the terminal one plainly staminate at the base, 4–10 flowered, a little divergent at maturity; bracts scale-like or bristleform; perigynia widely spreading, small, ovate, nerved on the upper side, thick and spongy at the round or subcordate base, ¾″–1″ long, contracted into a slender rough-margined bifid beak, longer than the ovate, acute or obtuse brown white-margined scale.

Swamps and wet places. Common in the central counties of the State. June.

Var. capillacea *Bailey.* Slender, 6′–16′ high, stems and leaves capillary; "perigynia broader and more conspicuously nerved on both sides." In our specimens the two lower spikelets are often 3″–4″ apart, the perigynia nerveless or obscurely nerved on the upper surface only, and widely divergent at maturity, agreeing with a form occurring in West Albany and Junius, having slightly wider leaves (½″ wide or less) which connects the variety and the type.

Low grounds along streams and shores. Long Island. May, June.

21. Carex seorsa *Howe.*

Stems 1°–2° high, slender, erect, smooth; leaves mostly a little shorter than the culm, 1″–1½″ wide, rough-margined; spike 1′–2½′ long, erect, green; spikelets 4–6, 6–20 flowered, globular or oblong, 2″–2½″ long, the upper two approximate, the others scattered, the lowest ½′–1′ distant from the next above, usually subtended by a bristle form bract, rarely by a leafy one 1½′ long; the terminal spikelet pistillate at the apex, rarely wholly staminate; perigynia small, broadly ovate, nerved on both sides, contracted into a short, smooth-margined, bifid beak, much longer than the green and brown white-margined subacute scale.

Swampy woods and groves. May, June. Lansingburgh, Rensselaer county. *Howe.* East Islip, Suffolk county, and near Rome, Oneida county. *Peck.*

This species grows in tufts and is separated from C. interior by its taller, stouter culms, its longer spikes, more numerous and more scattered spikelets, and by its smooth-beaked perigynia.

Spikelets 2–15 or more, approximate or more or less aggregated, ovate, obovoid, globular or clavate, sessile, erect or spreading, green, fulvous or silvery-green, whitish or tawny; perigynia concavo-convex, ovate, obovate or lanceolate, mostly nerved, prominently wing-margined, with a flat mostly rough-margined bifid beak.

Perigynia ovate-lanceolate, narrowly winged....... mirabilis.
Perigynia linear-lanceolate or narrowly lanceolate .. 1
Perigynia orbicular-ovate, broadly winged......... 2
1 Spikelets in a dense cluster partly concealed by long bracts.................................... sychnocephala.
1 Spikelets contiguous, bracts not concealing them ... 3
3 Spikelets densely aggregated, perigynia widely spreading or reflexed......................... cristata.
3 Spikelets contiguous or aggregated, perigynia not reflexed 4

4 Spikelets 8–15 obovoid, tips of perigynia ascending. . tribuloides
4 Spikelets 4–8, ovate, acute, perigynia erect. . . . . scoparia.
  2 Spikes often drooping, spikelets green or fulvous, perigynia loose, ascending. . . . . straminea.
  2 Spikes mostly erect, spikelets with a slight yellowish tinge, silvery-green, whitish or fulvous. 5
5 Spikelets globose-ovate, acutish, perigynia erect. . . . alboluteseens.
5 Spikelets whitish, silvery-green or fulvous. 6
  6 Spikelets obovoid, perigynia somewhat spreading. . fœnea.
  6 Spikelets 5″–10″ long, ovoid or clavate. 7
7 Spikelets whitish, perigynia appressed . . . . silicea.
7 Spikelets straw-colored, perigynia ascending . . . . alata.

22. Carex cristata *Schw.*

Stems 2°–3° high, stout, acutely angled, rough above the middle, prominently leafy; leaves shorter or longer than the culm, their sheaths enlarged upward, 2″–3″ wide, scabrous on the margins; spike ¾′–1½′ in length, erect or oblique, cristate; spikelets 7–12 or more, globular, densely aggregated, squarrose, the lowest with a setaceous or sometimes leafy bract 1′–2½′ long; perigynia elliptical-lanceolate, winged, nerved, tapering from the middle to a rough-edged bidentate beak, recurved or spreading at maturity; scale lanceolate, obtusish, brown, one-third shorter than the perigynium; achenium oval, short-stalked.

Fields and open woods, mostly in wet places. Common. July.

This fine species is at once known by its squarrose globose spikelets and light green foliage. It is not very variable. It is regarded as a variety of C. tribuloides in the Manual, but it is so constant and so peculiar in its appearance, being easily recognizable at sight, that it seems worthy of specific distinction.

23. Carex tribuloides *Wahl.*

Stems 2°–3° high, firm, rough on the acute angles above; leaves 1½″–2½″ wide, their sheaths loose and wide above, rough beneath or mostly on the margins, usually shorter than the culm; spikes 1′–1½′ long or more, erect, green; spikelets 8–15, aggregated or a little interrupted below, subglobose, the lowest with a setaceous or leafy bract 1′–2½′ in length; perigynia narrowly lanceolate, nerved, winged, 2″–2½″ long, tapering from the middle to a long, rough-edged, bidentate beak, erect or spreading at maturity; scale lanceolate, obtuse, one-half as long as the perigynium; achenium oval, stalked.

Low moist ground and swales in fields or thin woods. Common. July.

Var. reducta *Bailey.* More slender than the type; spike 1′–2′ long, straight or flexuous, often nodding or recurved, somewhat evenly interrupted or moniliform; spikelets 3–10, 2″–2½″ long, subglobose or obovate; bracts, when present, bristle-form; perigynia lanceolate, spreading, a little longer than the scale; achenium short-stalked or sessile.

Swamps or wet places in fields or the borders of woods. Common. July.

The spikelets are smaller than in the typical form of the species, and in general appearance the plant is quite distinct and probably worthy of specific distinction.

Var. Bebbii *Bailey.* Slender, erect; leaves 1½″–2″ wide, much shorter than the culm, their sheaths not enlarged above; spikelets 4–6, ovoid, 2″–2½″ long, aggregated into an ovoid head 5″–6″ long, greenish-brown or tawny; bracts usually present, bristle-form; perigynia lanceolate, narrowly winged, erect-spreading, a little longer than the acute brown scale; achenium oval, sessile.

Wet places. Rensselaer and Cortland counties and in the northern part of the State. July.

This also might easily be regarded as a valid species.

24. Carex scoparia *Schk.*

Stems 1½°–2½° high, slender, erect, rough at the top; leaves shorter than the culm, 1″–1½″ wide, rough-margined; spike ¾′–1½′ in length, straight or a little flexuous, greenish brown or tawny; spikelets 4–8, oblong ovate or elliptical, acute, the upper contiguous, the others distinct, or often aggregated into an ovoid head, sub-erect; bracts usually early deciduous, leafy when present; perigynia narrowly lanceolate, nerved, winged, tapering to a pointed bifid beak, slightly spreading at maturity; scale lanceolate, acute, brown, about one-half the length of the perigynium; achenium narrowly oval, long-stalked.

Common in open fields and in ditches by roadsides. July.

This species is very easily distinguished by its ovate acute brownish or tawny spikelets and appressed perigynia.

Var. minor *Boott.* A much reduced form, 6′–10′ high, the spikelets 2″–4″ long and darker than in the type. It often grows in drier places. Apparently an off-shoot of this is *forma elatior Peck, in litt.* which is taller, the spikes darker, and the perigynia more spreading, a not unusual condition in the Adirondack specimens. A noticeable feature is the filiform bract, which subtends the lowest spikelet.

25. Carex albolutescens *Schw.*

Stems 1½°–2° high, erect, or slender and recurved at the summit; leaves 1″–1½″ wide, rough margined, mostly shorter than the culm; spike ¾′–1½′ in length, erect or subflexuous and drooping, light yellowish-green; spikelets 3–8, approximate, ovoid, obtuse or subacute, the terminal one conspicuously staminate and contracted at the base; the scales acute or cuspidate; bracts scale-like or bristle-shaped, that of the lowest spikelet ½′–1½′ long; perigynia broadly ovate, nerved on both sides, thin, erect, with a slightly rough-margined bifid beak, a little longer than the ovate pointed or cuspidate scale; achenium oval, short-stipitate.

The spikelets are sometimes globose and green rather than pale yellowish-green, but the species is well marked by its erect perigynia, sharply pointed scales and bristle-shaped bracts.—(C. straminea var. fœnea *Torr.* Gray's Man., 6th ed.)

Suffolk county. July.

Var. cumulata *Bailey.* Stems taller and leaves shorter; spikelets 5–30, aggregated, abruptly contracted at base, spreading; perigynia obscurely nerved, appressed, otherwise as in the type.

Suffolk county. July.

26. Carex fœnea *Willd.*

Stems 15′–30′ high, slender, erect or recurved-spreading, smooth; leaves light green, 1″–1½″ wide, smooth, shorter than the culm, spike ¾′–1½′ in length, recurved or flexuous, silvery or whitish green; spikelets 5–8, the upper 2 or 3 contiguous, the others more or less separate, globose or obovate, contracted at the base into a short or long slender stipe, the lowest sometimes with a colored bristle-tipped bract ½′ long; perigynia broadly ovate, prominently nerved on both sides, broadly winged above the middle, finely scabrous margined, with a short bidentate beak, somewhat loosely spreading when mature; scale ovate acute, whitish or tawny, about the length of the perigynium; achenium ovate, apiculate.

A fine species, easily determined by the slender lax stems, and silvery-white, subsquarrose spikelets.

Woods and copses, especially in hilly and mountainous parts of the State. Common. June, July.

Var. perplexa *Bailey.* Larger, stouter, erect; the spikelets larger, the staminate portion less conspicuous, approximate, or aggregated into an erect head, the lowest sometimes prominently bracteate, perigynia of a firmer texture.

A form occurs which has stiff, subflexuous spikes, silvery-green spikelets, ovate above but narrowed below, and somewhat club-shaped; perigynia thin, spreading, about as long as the pointed scale.

Dry ground. Washington and Otsego counties. June, July.

Var. sparsiflora *Olney.* Differs from the type in its more slender culms, the spikes mostly nodding, and in its fewer, smaller and fewer-flowered spikelets.

27. Carex silicea *Olney.*

Stems 1°–2° high, firm, often recurved at the summit, mostly smooth; leaves stiff, erect, flat or involute, rough beneath, as long as the culm; spikes 1½′–3′ long, often flexuous; spikelets 4–8 or more, separate, moniliform, ovate, acute or obtuse, with a club-shaped base, silvery-white or tawny, 3″–5″ long, erect or spreading; bracts scale-like, lanceolate, as long as the stipe-like base; perigynia broadly ovate, nerved on both sides, wrinkled on the broad wing above, tapering into a short, smooth or roughish bifid beak, about equal to or a little surpassing the ovate, pointed scale; the tips of the perigynia mostly appressed.

Sandy soil. Suffolk county. July.

This species is abundant near the sea shore. Forms sometimes occur in which the spikelets are contiguous or the upper ones even aggregated. Occasionally the lowest one is borne on a long peduncle or branch, and rarely it is compound.

28. Carex straminea *Willd.*

Stems 15′–30′ high, erect or the summit drooping, smooth; leaves usually shorter than the culm, 1″–1½″ wide, smooth or rough-margined, yellowish green; spike 1′–1½′ long, flexuous;

spikelets 3–8, contiguous or 3″–4″ apart, ovate or subglobose above the contracted staminate base, 2″–2½″ wide, erect or ascending; bracts scale-like, pointed, or the lowest bristle shaped, rarely leaf-like; perigynia ovate, faintly or conspicuously nerved on one or both sides, moderately winged, with a short or long bifid beak, the tips loosely spreading, a little longer than the ovate acute tawny scale; achenium oval or obovate, apiculate.—(C. tenera *Dew.*, Wood's Cl. B., C. straminea var. tenera *Boott.*, Gray's Man., 5th ed.)

A common species in copses and open fields. June, July.

Var. brevior *Dew.* Every way larger than the type; spike stiff and erect; spikelets approximate or separate, ovate or subglobose above the staminate base, 3″–5″ broad; perigynia orbicular-ovate, broadly winged, nerved, with a conspicuously short bifid beak, the points loosely spreading.

Var festucacea *Boott.* Spike erect, or slightly flexuous and recurved; spikelets 4–10, club-shaped, the sterile portion usually exceeding the fertile, 4″–6″ long, the upper 3 or 4 contiguous, the others separate, forming an open or interrupted spike 1½′–3′ long, straw-colored or tawny.

Var. Crawei *Boott.* Differs from the last in its more robust habit, its weaker and sometimes drooping spikes, its larger globular spikelets, usually only the highest with a conspicuously contracted base, and in its broader winged, longer beaked perigynia.

Saratoga county.

Var. aperta *Boott.* Resembles the type in its slender habit and nodding spikes, but has larger spikelets all prominently tapering at the base, the perigynia more broadly winged, longer beaked, twice the length of the rusty brown scale.

Var. invisa W. *Boott.* Stems 1°–2° high, lax at the summit; leaves as long as the culm, 1″ wide or less; spike narrow, flexuous; spikelets aggregated or separate, the lowest often distant or remote, 2½″–3″ broad, rusty brown; bracts filiform, 2′–5′ in length.

Sandy soil. Suffolk county.

29. Carex alata *Torr.*

Stems 1½°–3° high, firm, erect, smooth below; leaves stiff, rough-margined, 1″–1½″ wide, shorter than the culm; spike 1′–1½′ long or more; spikelets 4–10, 4″–6″ in length; ovate or obovate, acute, contiguous or separate, greenish or straw-colored, sometimes tawny; perigynia orbicular-ovate or obovate, cuneate or cordate at the base, nerved, broadly winged, with a short abrupt beak, longer and broader than the lanceolate, acute or rough-awned scale — (C. straminea *Willd.* var. alata *Bailey.*)

Swales and wet places. Suffolk and Seneca counties. July.

30. Carex mirabilis *Dew.*

Stems 15′–36′ high, erect, smooth; leaves about equaling the culm, 1½″–2″ wide, rough-edged; spike 1½′–2′ in length, erect, often flexuous; spikelets 4–11, globose, contiguous, or the 2 or 3 lower ones sometimes 2″–3″ apart, ascending or widely spreading, green becoming tawny or rusty when old; bracts scale-like, or the lowest usually short setaceous; perigynia ovate-lanceolate, lightly nerved on both sides, narrowly winged, gradually tapering into a short or long rough-margined bifid beak, widely diverging when mature; scale narrowly ovate, obtuse, much shorter than the perigynium; achenium oval, apiculate and stipitate.

Easily determined by its coarse, rigid aspect and squarrose spikelets. Common in copses and fields. June.

This is added to C. straminea as a variety in the last edition of the Manual.

31. Carex sychnocephala *Carey.*

Stems 8′–16′ high, erect, smooth; leaves 4′–9′ in length, 1″–1½″ wide; spikelets 4–5, densely aggregated in a head, 6″–9″ long, 3″–5″ wide, partly concealed by 3 leaf-like bracts 3′–6′ in length; perigynia linear-lanceolate, 2½″–3″ long, pointed at the base, nerved, the long slender beak sharply toothed, twice the length of the blunt or mucronate scale.

Low wet meadows and moist places. Very rare. June, July.

Collected about fifty years ago in Herkimer and Jefferson counties, but it does not appear to have been found in our State recently.

Staminate flowers situated above or below the pistillate or the middle spikelets sometimes wholly sterile or wholly fertile.

Spikelets oblong-lanceolate, perigynia linear-lanceolate..	bromoides.
Spikelets 4–8, perigynia lanceolate...............	siccata.
Spikelets 10-15 or more, perigynia ovate-lanceolate.....	Sartwellii.

32. Carex Sartwellii *Dew.*

Stems 18′–30′ high, erect, smooth; leaves usually shorter than the culm, 1″–1½″ wide, rough on the slender points; spike 1′–2′ long, erect, brown; spikelets 12–20, contiguous or the lower 2″ or 3″ distant, ovate, widely spreading; bracts scale-like, or the lower ones setaceous, 3″–6″ long; perigynia ovate-lanceolate, nerved, gradually tapering into a short, rough-edged, bifid beak, a little exceeding the ovate acute brown scale, loosely spreading at maturity.

Bogs and swamps. Very rare. Seneca county. July.

The numerous spreading spikelets disposed in a rather compact spike distinguishes this species. It is C. disticha *Huds* in the fifth edition of the Manual.

33. Carex siccata *Dew.*

Stoloniferous; stems 15′–30′ high, slender, erect or spreading, smooth; leaves mostly shorter than the culm, about 1″ wide, smooth; spikes ¾′–1½′ long, brown, dry and chaffy; spikelets 7–16, 4″–6″ long, ovate or elliptical, acute or blunt at the apex, mostly aggregated; bracts scale like, the lower lanceolate acuminate, sometimes rough-awned; perigynia lanceolate, nerved, with a long rough bifid beak scarcely spreading at maturity; scale broadly lanceolate, acute, brown, with broad white margins above the middle.

A special feature of this species is the dry or over-ripe appearance of the spikes.

Rich soil in open woods and copses, also on sandy plains. Rare in the western part of the State, but more common in the eastern and southern part. June, July.

34. Carex bromoides *Schk.*

Stems 1°–2° high, slender, erect or spreading, rough above the middle; leaves as long as the culm, or shorter, ½″–1″ wide, rough-edged; spikes ¾′–1½′ long, of a clear light brown; spikelets 3–8, the upper three usually contiguous, the lower ones more or less separate, the lowest sometimes subdistant, erect, cylindrical, 3″–9″ in length; bracts scale-like, the lowest short-setaceous; perigynia linear-lanceolate, nerved, tapering below to a thick corky base, and above into a long slender rough edged bifid beak, much longer than the oblong-lanceolate or ovate acute brown scale, erect-spreading at maturity.

The conspicuously corky base of the perigynia distinguishes this species.

Wooded swamps, wet meadows, etc. Common. May, June.

Stigmas 3; *achenium triangular.*

Spikes staminate above, pistillate below.

Flowers disposed in a single spike 2″–8″ long.

Bracts and scales not leaf-like.

Perigynia oblong, erect.......................... polytrichoides.
Perigynia awl-shaped, deflexed.... .... pauciflora.

35. Carex polytrichoides *Muhl.*

Stems 4′–15′ high, capillary, diffuse or erect, rough above; leaves flat or capillary, ½″ wide, smooth and soft, mostly about the length of the culms; spike linear, 2″–5″ long, subloosely flowered, green or brownish at maturity; bracts scale-like, ovate, bristle-tipped; perigynia 1½″ long, subtriquetrous, alternate, erect, slightly recurved at the apex, nerved, about twice longer than the obtuse or acute, whitish scale, the latter usually caducous.

Swamps and wet places. Common. June.

The species is easily distinguished by the small green few-flowered spikes and caducous scales.

36. Carex pauciflora *Lightf.*

Stems 6′–15′ high, stiff, erect or curved, smooth below; leaves flat or involute, ½″ wide, rough-margined, stiff and often curved, mostly shorter than the culm; staminate scales 2, light brown, conspicuously terminating the spike; spike loosely 2–5 flowered; perigynia awl-shaped, 4″ long, slightly inflated, mostly erect in the early stage, becoming widely divergent and strongly deflexed at maturity, twice the length of the lanceolate scale.

Cold sphagnous swamps and bogs. Common in the northern part of the State, rare elsewhere. June, July.

A pretty species, easily distinguished by its single spike and subulate at length deflexed perigynia.

Bracts and scales leaf-like.

Perigynia 2–5, smooth .... Backii.
Perigynia 4–9, rough on the angles and beak........ Willdenovii.
Perigynia 2–5, rough on the beak.................. Jamesii.

37. Carex Backii *Boott.*

Stems ½′–4′ high, diffuse; leaves 2–4 times the length of the culm, 1½″ wide, slightly rough-margined; perigynia 2–4, globular-ovate, abruptly contracted into a long, smooth beak; scales leafy, mostly concealing the spike; staminate scales inconspicuous.

Woods. Local. June. Found many years ago in Jefferson county. The name has recently been changed to C. durifolia *Bailey.*

38. Carex Willdenovii *Schk.*

Stems 1′–10′ high or more, slender, erect or diffuse; leaves 1″–1½″ wide, far surpassing the culm, roughish on the margins; spike 2″–4″ long, 4–9 flowered; perigynia globose-ovoid, rough on the angles and the awl-shaped beak; scales leaf-like below, the upper broadly lanceolate with a green 3-nerved center and scarious margins, usually exceeding the perigynia, staminate portion 2″–3″ long.

Moist, shady places in woods and ravines. Rare. Jefferson and Cayuga counties. June. Sometimes one or two additional spikes are borne on subradical peduncles

39. Carex Jamesii *Schw.*

Stems 3′–10′ high, capillary, spreading or erect; leaves mostly twice the length of the culm, ½″–1½″ wide, rough on the margins; spike conspicuous, loosely 2–5 flowered; perigynia globular, smooth, abruptly contracted into a long, rough edged beak; scales leaf like, mostly exceeding the culm; staminate portion 3″–5″ long.

Woods and ravines. Very rare. Cayuga county. June. This is C. Steudelii *Kunth.*

B. Staminate and pistillate flowers disposed in separate spikes on the same culm or plant (monœcious), or on distinct culms or separate plants (diœcious).

Stigmas 2, *rarely* 3; *achenium lenticular.*

Plant commonly diœcious.

40. Carex gynocrates *Wormsk.*

Stems 4′–6′ high, erect, rough at the summit, as long as the capillary leaves; sterile spike linear, 6″ long or less, fertile spikes 4″–5″ in length; perigynia oblong-ovate, teretish, 1½″ long, nerved, contracted into a short bifid or notched beak, longer than the ovate acute or pointed scale, horizontally spreading at maturity.

Swamps. Rare. June, July. Genesee, Wayne, Yates and Herkimer counties.

Var. substaminata *Peck*. (C. monosperma *Macoun*). This has a single perigynium at the base of the staminate spike.

Plant Monœcious.

Staminate spikes 1–3, stalked, often with a few fertile flowers at the base or apex; pistillate spikes 1–5, stalked or sessile, cylindrical, densely flowered or sometimes loosely flowered toward the base, often staminate at the apex; bracts leaf-like or filiform, the lowest usually equaling or surpassing the culm, sheathless; perigynia compressed, ovate or obovate (turgid in 47 and 48); scales dark purple or brown (sometimes greenish in 47 and 48), giving a mottled appearance to the spikes, mostly shorter than the perigynia.

	Pistillate spikes erect or spreading (the lower ones recurved or drooping in 46), scales awnless	1
	Pistillate spikes nodding, scales rough-awned	6
1	Perigynia stalked, their scales blackish-purple or brown,	2
1	Perigynia sessile, their scales brown or purple-margined,	5
2	Perigynia nerved or nerveless, their scales blackish-purple	rigida.
2	Perigynia nerveless, their scales brown	3
3	Perigynia obovate, spikes 2″ wide	aquatilis.
3	Perigynia ovate or elliptical, spikes less than 2″ wide	4
4	Scales sharp pointed, squarrose	aperta.
4	Scales obtuse, perigynia tortuous at the apex	torta.
5	Perigynia nerveless	stricta.
5	Perigynia slightly nerved	lenticularis.
6	Perigynia obovate	crinita.
6	Perigynia ovate or oblong-ovate	gynandra.

41. **Carex rigida** *Good.*, var. **Bigelovii** *Tuckm.*

Stems 10′–15′ high, erect, smooth, sometimes stoloniferous; leaves shorter than, or as long as, the culm, smooth, usually 1″ wide, erect, or the lower ones recurved-spreading, smooth;

staminate spike linear, 3″–9″ long, borne on a stalk 2″–10″ in length, light brown; pistillate spikes 2–3, approximate, the upper two sometimes contiguous and sessile, or the lower two stalked, the lowest sometimes borne on an erect or spreading peduncle 6″–9″ long, subdensely or loosely flowered, often interrupted and tapering at base, ¼′–1¼′ in length; bracts short setaceous, or the lowest sometimes exceeding the spike; perigynia elliptical, nerved or nerveless, whitish green, mostly covered by the blackish-purple elliptical scale.

It may be distinguished from the related species by its small size, blackish fertile spikes and by its alpine habit.

Summits of the higher peaks of the Adirondack mountains, especially Mt. Whiteface and Mt. Marcy.

In the fifth edition of Gray's Manual, Carey describes a very different plant under the above name.

42. Carex lenticularis *Mx.*

Stems 10′–20′ high, slender, erect or somewhat spreading, mostly smooth; leaves usually shorter than the culm, ½″–1″ wide, rough-margined; staminate spike cylindrical, sometimes bearing a few perigynia, 3″–12″ long, its stalk 2″–8″ in length, brown, erect; pistillate spikes 3–4, 6″–12″ long, approximate or contiguous, sometimes the lowest distant, short peduncled or sessile, erect or ascending, densely flowered above, more or less loosely flowered and tapering at the base; bracts leaf-like, usually surpassing the culm; perigynia ovate, stipitate, lightly nerved, the upper third sometimes conspicuously empty and a little recurved, minutely pointed, one-third longer than the blunt, green and brown scale.

Well marked by its densely flowered, nearly aggregated, grayish green spikes, and by the usually empty points of the perigynia.

Gravelly shores of lakes and streams. Adirondack mountains. July.

Var. merens *Howe, n. var.* Differs from the preceding in its longer, narrower, darker colored fertile spikes, the lowest usually short-pedunculate; in its longer, wider bracts, 1½′–2½′ longer than the culm; in its elliptical perigynia, and in its longer scale which nearly covers the perigynium.

43. Carex aquatilis *Wahl.*

Stems 2°–3° high, firm, erect, acutely triangular above, smooth; leaves long, sometimes surpassing the culm, 1½″–2″ wide, rough-margined, pale green or glaucous; staminate spikes 1–4, the highest on a short stalk, 1′–1½′ in length, the others shorter and sessile; usually 1 or more with a setaceous or filiform bract; pistillate spikes 3–5, sessile or the lowest short-peduncled, approximate or subdistant, or the lowest remote, cylindrical or subclavate, the upper often staminate at the apex, ½′–2′ long, compactly flowered; bracts leafy, much surpassing the culm; perigynia broadly ovate or elliptical, nerveless, biconvex, minutely pointed or pointless, about the length of the narrow, obtuse, brown scale.

Cold upland swamps and wet places. Not common. June, July.

44. Carex aperta *Boott.*

Stems 20′–30′ high, erect, triangular, rough above the middle; leaves about 1½″ wide, rough-margined, shorter than the culm; staminate spikes 1–2, cylindrical, the highest 1′–1½′ long, short stalked, the other shorter and sessile, usually with a setaceous bract; pistillate spikes 2–4, cylindrical, the upper approximate and sessile, sometimes sterile at the apex, the lowest distant, short-peduncled, often staminate above, 9″–15″ long, densely flowered above, more loosely at the tapering base; upper bract bristle-shaped, longer than the spike, the lowest leafy, mostly shorter than the culm; perigynia ovate, stipitate, nerveless, olive-brown, minutely dotted, with a small notched point, more or less spreading at maturity; scale dark brown, narrowly lanceolate, pointed, horizontally spreading, exceeding the perigynia.

Rare. Essex county. July.

This is Carex stricta var. decora *Bailey* in the 6th edition of the Manual.

45. Carex stricta *Lam.*

Stems 2°–3° high, erect, acutely triangular, rough above the middle; basal sheaths with fibrillose margins, the fibrils either reticulated or parallel; leaves 1″–1½″ wide, rough margined, more or less involute when dry, glaucous-green, mostly shorter than the culm; staminate spikes 1–3, ½′–1½′ long, the highest on a stalk

¼′–1′ in length, the others smaller and sessile, usually with a scale-like or short setaceous bract; pistillate spikes 2–5, ½′–2′ long, the upper approximate, sessile, the lower subdistant or remote, short peduncled, erect or spreading, cylindrical or clavate, densely flowered above the middle, more loosely at the usually tapering base, often barren at the summit; bracts of the upper spikes short setaceous, of the lower ones leafy, and mostly shorter than the culm; perigynia ovate or elliptical, usually with two or three short nerves at the base, minutely pointed, of a creamy white color, often dashed with dark purple or sometimes wholly blackish purple; scale narrowly oblong, obtuse, reddish or dark brown, about the length of the perigynium, or sometimes longer.

A common species in wet places. May, June. It almost always grows in tufts. It is quite variable.

Var. strictior *Carey*. Pistillate spikes 2–3, approximate, or the lowest subdistant, densely flowered; perigynia ovate, bright green, about the length of the acute rusty-brown scale.

Var. xerocarpa *S. H. Wright*. Slender; pistillate spikes 2–3, linear, more narrow than in the type, on filiform erect spreading or drooping peduncles ½′–1′ long; perigynia lenticular; scales mostly green with rusty brown points. A graceful variety about one-half smaller than the type.

Var. angustata *Bailey*. Pistillate spikes cylindrical, strict, 2′–3′ long, densely flowered; scales more acute, dark-brown or rust-colored, often exceeding the perigynium.

Var. curtissima *Peck n. var.* Stems 18′–24′ high, very slender, erect, rough, exceeding the narrow (½″ wide) rough leaves; staminate spike with a minute one at its base, linear clavate, 8″–10″ long, short-stalked; pistillate spikes 2, ovoid or oblong, densely flowered, sterile at the apex, 3″–6″ long, 8″–10″ apart, sessile; the lowest bract leaf-like, 1′–1½′ in length, the uppermost setaceous; perigynia oval with a minute orifice, longer than the blunt brown scale.

46. Carex torta *Boott.*

Stems 15′–30′ high, erect or spreading, acutely angled, mostly smooth; basal sheaths short, brown, fibrillose, leaves 1½′–6′ or more long, 1½″–2″ wide; staminate spikes 1–2, cylindrical, ½′–1½′ long, the terminal one short or long-stalked, the lowest sessile; pistillate spikes 2–5, ¾′–2½′ long, cylindrical, densely flowered, or sometimes loosely flowered toward the base, often sterile at the apex, approximate, or subdistant, or even remote, the uppermost sometimes erect, the others spreading, recurved or drooping, all sessile or the lowest on short, slender peduncles; bracts leafy or filiform, the lowest about equaling the culm, the others shorter or longer than their respective spikes; perigynia lanceolate, thin, deep-green or olive-colored, nerveless, oblique and tortuous or recurved at the empty apex; scale narrowly oblong obtuse or acute, a little shorter than the perigynium.

Wet places, especially along streams. Common. June.

47. Carex crinita *Lam.*

Stems 2°–4° high, stout, acutely angled, rough above; sheaths smooth, fibrillose at the base; leaves mostly shorter than the culm, 2″–4″ wide, hispid beneath and on the margins; staminate spikes 1–3, ½′–3′ in length, the longest on filiform stalks ½′–1′ long, more or less recurved, or even pendulous; pistillate spikes 3–5, 2′–4′ long, cylindrical, curved, densely flowered, or loosely flowered and tapering at the base, sometimes staminate at the apex, approximate, all on filiform stalks ¼′–1½′ long, recurved-spreading or pendulous; lower bracts leafy, surpassing the culm, the upper short, filiform, longer or shorter than the spikes; perigynia round-obovate, stipitate, a little inflated, thin, faintly nerved or nerveless, with a conspicuous entire point; scale brown, oblong, obtuse, with a rough, green awn, twice the length of the perigynium.

Common in swamps, ditches and wet fields. June, July.

A tall, robust, coarse-looking species, distinguished by its long, recurved or pendulous bristly fertile spikes.

Var. minor *Boott.* This is every way smaller; fertile spikes more compactly fruited, usually shorter peduncled, the upper less drooping; scales with less conspicuous awns; plant paler and of finer aspect.

48. Carex gynandra *Schw.*

Stems 2°–4° high, stout or slender, erect, rough on the angles and sheaths, those at the base fibrillose; leaves shorter or longer than the culm, 2″–4″ wide, hispid beneath and on the margins; staminate spikes 1–3, cylindrical, the terminal one on a filiform, curving peduncle 1′ long, the others short-stalked or subsessile, each with a scale-like or bristle-form bract; fertile spikes 3–6, subdensely flowered, 2′–4′ long tapering at the base, usually one or more sterile at the apex, all short-peduncled and recurved or drooping, the lower subtended by foliaceous bracts longer than the culm, the upper bracts filiform or setaceous and shorter than the stem; perigynia oblong-ovate, subinflated, nerveless or obscurely nerved, with a distinct entire point; scale oblong, obtuse or lanceolate, with a long rough awn, twice or thrice the length of the perigynium.

Separated from the last, to which it is closely related, by its hispid sheaths, soft fertile spikes, and by its ovate or oblong-ovate perigynia. Both species often grow together and in both the staminate spike often bears a few perigynia.

Stigmas 3; *achenium triangular.*

Staminate spike single (sometimes 2 or 3 in 48); fertile spikes 1–4, on slender drooping stalks; perigynia compressed-triangular with a few indistinct nerves; scales dark purple or brown.

Perigynia oval or oblong-ovate, scale ovate, blunt or acute	littoralis.
Perigynia ovate, scale ovate-mucronate	limosa.
Perigynia orbicular-ovate or obovate, scale slender pointed	Magellanica.

49. Carex littoralis *Schw.*

Stem 15′–24′ high, slender, erect, acutely angled, smooth; leaves much shorter than the culm, 1″–1½″ wide, stiff and erect, smooth; staminate spike (rarely 2 or 3) subclavate, 6″–15″ long, short-stalked, scales brown or blackish-purple; pistillate spikes 2–4, densely flowered, cylindrical, all usually staminate at the apex, subapproximate, the uppermost short-peduncled and suberect, the others on filiform drooping stalks 4″–9″ long; bracts sheathless, the upper setaceous or scale-like, the lower leaf-like, shorter than the culm; perigynia compressed-oval, or oblong-ovate, lightly few-nerved, with a minute entire orifice, about the length of the obtuse or acute dark purple scale.

Wet places. Suffolk county. May.

This species has not before been credited to our State. In the Manual, New Jersey is given as its northern limit. It is doubtful if it will be found north of Long Island and Staten Island. Our specimens were collected near Islip.

It is C. Barrattii, *Schw.* and *Torr.*, in the 5th edition of the Manual.

50. Carex limosa *L.*

Stoloniferous; stems 1°–2° high, slender, erect, acutely angled, rough above the middle; leaves ½″–1″ wide, thick, sometimes involute, rough-margined, shorter than the culm; staminate spike solitary, linear, ½′–1¼′ in length, usually equaling its peduncle; pistillate spikes 1–3, approximate or subdistant, oblong or ovoid on recurved or drooping stalks ½′–1′ long, 10–20 subloosely flowered, often barren at the summit, ½′–1′ long, 1½″–3″ wide; bracts slender-setaceous, shorter than the culm; perigynia ovate or elliptical, nerved, light green, with a minute, entire point; scale lustrous brown, ovate, acute or obtuse, sometimes cuspidate, as long and wide as the perigynium.

Cold swamps and bogs. Rare except in the central and northern parts of the State. July.

It bears some resemblance to C. castanea, but that species has pubescent leaves and lanceolate perigynia.

Var. radicalis *Paine.* Staminate spike terminal on the naked, erect stout culm; pistillate spike single, drooping, on a filiform radical peduncle 4′–9′ long. Herkimer county. *Paine*

51. Carex Magellanica *Lam.*

Stems 10′–20′ high, slender, erect, a little rough on the angles above; leaves mostly shorter than the culm, 1″–1½″ wide, erect, rough on the margins; staminate spike single, subclavate, ½′ long, its peduncle filiform and drooping; pistillate spikes 2–4, ½′ in length, 10–24 subloosely flowered, approximate, all on filiform drooping stalks ½′–1′ long; bracts leaf-like, the 2 lower usually surpassing the culm; perigynia ovate or elliptical, lightly nerved, pale green, with a minute entire point, one-half the length of the lanceolate, pointed, dark purple scale, the latter a little divergent at maturity.

Cold sphagnous swamps, often in company with C. limosa. July.

This handsome species may be identified by its short, mostly pendulous mottled spikes with long-pointed, dark-purple scales.

Spikes 2–4, oblong, ovoid or cylindrical, densely flowered, erect, 2″–5″ broad or more, ¼′–1′ long, the upper half or more of the terminal one fertile, staminate and stalk-like at the base, the others all fertile or nearly so; bracts leaf-like, the lowest shorter or longer than the culm.

Spikes brown....................................	fusca.
Spikes green, perigynia pupescent	virescens.
Spikes green, perigynia smooth	triceps.

52. Carex fusca *All.*

Stems 15′–30′ high, erect, or sometimes curved at the summit, acutely angled, rough above; leaves subradical, 1″ wide, shorter than the culm, rough-margined; spikes 2–4, the terminal one staminate at the base, all approximate, or somewhat scattered, sessile, erect, the upper ones with filiform or bristle-form bracts, the lowest short-peduncled or sometimes on a spreading stalk 1′ long and subtended by a leafy bract 1′–5′ long, mostly densely flowered, oblong-ovoid, or cylindrical, 3″–12″ in length or more, 2½″–6″ thick, dark-brown or mottled; perigynia elliptical, prominently nerved, light-green, with a minute, entire or slightly notched point, shorter than the lanceolate, cuspidate, dark-brown scale, the latter more or less divergent at maturity. (C. Buxbaumii *Wahl.*)

Bogs and wet places. Albany, Essex, Genesee and Seneca counties. June, July.

The slender, mostly naked culms, and the short thick erect dark-colored or mottled spikes sufficiently distinguish this species.

53. Carex triceps *Mx.*

Stems 12′–20′ high, stiff, scabrous above; leaves about the length of the culm, 1″–1½″ wide, erect, more or less pubescent, the sheaths densely hairy, pale-green; spikes 3–4, the terminal staminate at its base, all contiguous, sessile or nearly so, erect, ovate, ovoid or oblong, 3″–8″ long, 2″–3″ thick, densely flowered; bracts leafy or filiform, the lowest, and sometimes all, exceeding the culm, perigynia ovate, obtuse, nerved, smooth or hairy before maturity, longer than the ovate, acute, short-awned, variable scale.

Dry soil in pastures copses and thin woods. Common. June.

This species is easily distinguished by its three or four short thick erect contiguous spikes, at first pale green but turning brownish when old.

54. Carex virescens *Muhl.*

Stems 12′–30′ high, slender, erect or sometimes spreading, rough near the summit; leaves pubescent, 1″–1½″ wide, mostly tapering to a long filiform point, often equaling the culm; spikes 2–5, the highest staminate at the base, all approximate or contiguous, ovoid or oblong, 4″–12″ in length, about 2″ thick, compactly flowered, all on short stalks, the lowest sometimes spreading; bracts leafy or filiform, the lowest exceeding the culm; perigynia ovate prominently nerved, scabrous-pubescent, longer than, or equaling the ovate, mucronate scale.

Similar to C. triceps in its place of growth and time of maturity. It is separated from it by the narrower and often longer spikes, and by its hairy perigynia.

Var. costata *Dew.* Stems 20′–30′ high, spikes cylindrical, erect or slightly spreading; perigynia strongly nerved or ribbed. Equally common with the type.

Terminal spike pistillate at the summit, staminate below; fertile spikes 3–5, linear or cylindrical, on short, erect or long filiform peduncles, approximate, or the lowest sometimes distant, subdensely or loosely flowered; perigynia oblong with a short, notched point, or obtuse and pointless.

	Spikes narrowly cylindrical, less than 2″ wide	1
	Spikes broadly cylindrical, 2″ wide	2
1	Spikes loosely flowered, perigynia acute	æstivalis.
1	Spikes densely flowered, perigynia obtuse......	gracillima.
2	Scale shorter than the perigynium..................	formosa.
2	Scale as long as the perigynium....................	Davisii.

55. Carex æstivalis *M. A. Curtis.*

Stems 1°–2° high, slender, erect or spreading, rough above the middle; leaves mostly shorter than the culm, 1″–1½″ wide, sparsely hairy, bright green, sheaths pubescent; staminate spike fertile at the summit, linear or clavate; pistillate spikes 3–4, linear, erect or spreading, the upper 2 or 3 approximate, the uppermost sometimes sessile at the base of the staminate, the others short-stalked, the lowest often distant or remote on a filiform spreading peduncle 1′–2′ long, loosely flowered; bracts leafy or filiform, the lowest surpassing the culm; perigynia small, ½″ wide, ovate, acutish at each end, nerved, entire at the apex, twice longer than the ovate, hyaline scale; achenium obovate, substipitate.

Shaded soil in woods. Rare. July. Otsego county. This delicate carex is distinguished from its near relatives by its slender, loosely-flowered, erect or spreading spikes and its hairy sheaths.

56. Carex gracillima *Schw.*

Stems 18′–30′ high, erect, mostly smooth; basal sheaths prominently fibrillose; leaves shorter than the culm, 1″–2″ wide, radical leaves tufted, 2″–3½″ wide, rough, light green; staminate spike with or without pistillate flowers at the apex, linear; pistillate spikes 3–4, linear, the upper 2 or 3 approximate, the lowest distant, all drooping on filiform peduncles, subdensely flowered, or loosely flowered at the base; bracts leafy or filiform, the lowest as long as the culm; perigynia ovate, nerved, entire at the obtuse apex; scale ovate, obtuse, hyaline, one-half as long as the perigynium; achenium oblong-obovate, apiculate.

Woods and fields in moist or dry soil. Very common. June.

Very rarely the lower spikes have 1 or more additional branches at the base.

This species is well marked by the blackish purple, fibrillose basal sheaths, and the obtuse perigynia of the linear, subdensely-flowered, drooping spikes.

Var. humulis *Bailey.* A much reduced form with 2–12 flowered spikes and smaller perigynia.

C. gracillima × pubescens *Howe.*

Stems 15′–30′ high, stiff, rough; leaves 1½″–2½″ wide, roughish and sometimes hairy, shorter than the culm; spikes approximate or the lowest distant, sessile or stalked, erect; perigynia ovoid, hairy with a short bidentate beak, not unlike an abortive perigynium of C. pubescens. (Botanical Gazette, Feb., 1881, p. 169.) (C. Sullivantii *Boott.*)

In a swampy meadow. Yonkers, Westchester county. 1878.

A similar hybrid, but one more closely resembling C. gracillima, occurs in Albany and Greene counties, where it was detected by Mr. C. L. Shear.

The terminal spike bears perigynia at its apex; the perigynia are smooth and the scale is acute or barely mucronate, not awned. In these respects it approaches C. gracillima more closely than it does C. pubescens. This has been somewhat doubtfully considered by Professor Bailey to be a hybrid between C. gracillima x æstivalis, but it is only necessary to suppose that in this case the prepotency lies with C gracillima and in the other with C. pubescens to make both forms descendants of the same parent plants, as they probably are.

57. Carex formosa *Dew.*

Stems 15′–30′ high, slender, erect, smooth; leaves short, the uppermost sometimes equaling the culm, 1½″–2½″ wide, slightly hispidly pubescent beneath, yellowish green; spikes 2–5, the terminal with 6–8 perigynia at the apex, staminate below, long peduncled, the others subdistant or approximate, secund, all on filiform recurved or drooping peduncles, subdensely flowered, with 2 or 3 empty scales at the base; bracts leafy or filiform, about equaling the culm; perigynia ovate, turgid, nerved, thin, tapering to a short entire or minutely-notched beak; scale ovate, obtuse, cuspidate, white or brownish, one-half as long as the perigynium.

The spikes are ¼′–1′ long, and about 2″ wide; the perigynium 3″ long and 1″ wide, giving to the former a thick and heavy appearance, by which the species may be distinguished.

Woods and wet places. Rare. June. Columbia, Oneida and Yates counties.

58. Carex Davisii *Schw. & Torr.*

Stems 1½°–3° high, erect, rather stout, smooth or with a soft pubescence; leaves mostly equaling or exceeding the culm, 1½″–4″ wide or more, clothed with a soft pubescence beneath, hispid on the veins and margins; spikes 3–5, the terminal, pistillate above, erect, the 2 upper fertile ones contiguous at the base of the staminate portion, subsessile or short-peduncled, the lowest distant or remote on a short, erect, or rarely long, spreading stalk ½′–1½′ long, densely flowered, 3″–4″ wide, light green, erect or somewhat spreading; bracts leaf-like, equaling or exceeding the culm; perigynia ovate, conspicuously nerved, turgid, tapering into a short bifid beak, about the length of the ovate obtuse awned scale.

Wet meadows Not common. June. Oneida county.

The drooping of the lower spikes depends on the splitting of the long sheaths which, for a time at least, include their short peduncles. This species is conspicuously marked by its short, thick, mostly erect spikes and large turgid perigynia.

Staminate spike club-shaped, long-peduncled; fertile spikes 2–4, subapproximate or mostly remote, erect; bracts shorter than the culm; perigynia oblong, ovate or obovate, beakless except in 60.

	Upper spikes appproximate or nearly so	1
	Upper spikes not approximate	2
1	Perigynia oblong, lightly nerved or nerveless	livida.
1	Perigynia with impressed nerves	conoidea.
2	Sheaths dilated	vaginata.
2	Sheaths not dilated	2
	Leaves and bracts 1″ wide, shorter than the culm	tetanica.
	Leaves and bracts 1″–1½″ wide, nearly equaling the culm	Crawei.

59. Carex Crawei *Dew.*

Stoloniferous; stems 6′–12′ high, slender, erect or diffuse, smooth; leaves short, sometimes equaling the culm, 1″–1½″ wide, smooth, rough-margined; staminate spike clavate ½′–1′ in length on a stiff, erect stalk 1′–2′ long, sometimes with 1 or more short additional ones at or near its base, and sometimes with a few fertile flowers at the apex; pistillate spikes 2–4, cylindrical, densely flowered, 6″–9″ long, distant or remote, sometimes the lowest subradical on a short exserted stalk; bracts leafy, sheathing, about equaling the culm; perigynia ovate, lightly nerved, slightly turgid, roughish, tapering to a small entire point, longer than the ovate, cuspidate scale.

Limestone soil. Rare. June, July. Genesee, Herkimer and Jefferson counties.

Distinguished by its low stature, creeping root-stock, and densely flowered distant dull brown nearly sessile spikes.

60. Carex livida *Willd.*

Stems 6′–18′ high, slender, erect, smooth; leaves mostly shorter than the culm, ½″–1″ wide, flat or involute, stiff, rough margined; staminate spike cylindrical, acute, ½′–1′ in length, on a stiff stalk ½′–1′ long; pistillate spikes 1–2, contiguous, rarely a third subradical one, short oblong or cylindrical, ¼′–¾′ long, 15–20 loosely flowered, sessile; bracts small, leafy or setaceous, scarcely equaling the culm; perigynia ovoid-oblong, lightly nerved, pale green, tapering to a small, straight, entire point, a little exceeding the ovate, light brown scale.

Cold swamps. Very rare. June, July. Oneida and Herkimer counties.

61. Carex vaginata *Tausch.*

Stoloniferous; stems 10′–24′ high, mostly weak and diffuse, smooth; leaves subradical, half the length of the culm, 1½″–2″ wide, smooth, slightly rough on the margin, radical leaves tufted, nearly as long as the culm, 2″–3″ wide; staminate spike clavate, or ovoid-oblong and acute, erect or oblique, ½′–¾′ long, its stalk ¾′–1½′ in length, or more; pistillate spikes 2 or 3, remote, 4–10 loosely or 12–15 compactly flowered, ¼′–½′ or more long, on exserted, filiform erect or drooping peduncles ½′–1½′ in length, the latter partly included in the conspicuously dilated sheaths of the short leafy bracts; perigynia oblong-ovate, nerved, tapering to a short round oblique-notched beak, longer than the ovate acute or obtusish thin brown scale.

Swampy places. Very rare or local. June. Genesee county.

This rare species is conspicuously marked by its dilated sheaths and round beaked perigynia. It stands under the name C. Saltuensis *Bailey* in the sixth edition of the Manual.

62. Carex tetanica *Schk.*

Stoloniferous; stems 1°–2° high, slender, erect, rough at the summit; leaves mostly shorter than the culm; ½″–1″ wide, stiff, flat or involute above, roughish on the margins, bright green or glaucous; staminate spike clavate or cylindrical ½′–1′ in length, on a slender, mostly erect peduncle 2′–4′ long, light brown; pistillate spikes 1–3, remote, loosely flowered, cylindrical, usually with a tapering base, ½′–1′ in length; the uppermost short-stalked or nearly sessile, the lower on slender, erect or spreading peduncles ½′–3½′ long; bracts foliaceous, much shorter than the culm; perigynia triangular-obovoid, prominently nerved, abruptly contracted into a short curved entire point, longer than the ovate obtuse, sometimes mucronate or cuspidate thin white and brown scale; achenium short-obovate, tricostate, with a short, bent style.

Wet swampy places. Rare. June. Cayuga, Seneca and Jefferson counties.

This is distinguished from its congeners by the long-peduncled spikes and obovoid, nerved perigynia.

Var. Woodii *Bailey* is a lax form growing in deep shade and having longer spreading leaves and shorter fewer flowered fertile spikes.

63. Carex conoidea *Schk.*

Stems 12′–20′ high, stiff, rough above; leaves mostly shorter than the culm, 1″ wide, rough margined; staminate spike ½′–1′ long, clavate, long or short-peduncled, erect, light brown; pistillate spikes 1–3, 6″–9″ long, subdensely flowered, the upper 2 approximate or distant, short stalked or sessile, the lowest remote on a spreading or erect peduncle ½′–1½′ long; bracts foliaceous, usually shorter than the culm; perigynia oblong-conic with impressed nerves, and a short straight or curved entire point, about the length of the ovate rough-awned scale, the latter more or less divergent at maturity; achenium obovate, apiculate.

Moist meadows and grassy places. Common. June.

This is easily recognized by the shape and nerving of the perigynia.

Fertile spikes 2–6, erect on exserted stalks or the uppermost sessile, approximate or the lower distant; bracts leaf-like, exceeding the culm; perigynia oblong or pyriform, obtuse, nerved (obscurely in 64 and 65).

	Perigynia obscurely nerved	1
	Perigynia distinctly nerved	2
1	Perigynia oblong	pallescens.
1	Perigynia pyriform	aurea.
2	Perigynia oblong-ovate, 1½″ long	glaucodea.
2	Perigynia oblong, 2″ long	grisea.

64. Carex pallescens *L.*

Stems 6′–24′ high, slender, mostly erect, hispid on the angles near the spikes, smooth below; leaves mostly shorter than the culm, 1″–1½″ wide, rough-margined, slightly pubescent on the sheaths; staminate spike often clavate, 4″–8″ long, short-stalked; pistillate spikes 2–4, oblong, densely flowered, 3″–6″ long, contiguous, the uppermost sessile, the others on short peduncles, erect or spreading; bracts leafy, sheathless, often transversely wrinkled at the base, exceeding the culm; perigynia oblong, faintly nerved, pointless, as long as the pointed scale.

Fields and grassy places. Common. June.

The species is well marked by the somewhat clustered, short-peduncled, fertile spikes, and the oblong obscurely-nerved pointless perigynia.

65. Carex aurea *Nutt.*

Stems 3′–18′ high, slender, erect or subprocumbent, smooth below, roughish above; leaves mostly shorter than the culm (or exceeding it in pigmy forms) ½″–1″ wide, smooth, slightly rough on the margins, bright green; staminate spike clavate, 3″–8″ long, sessile and inconspicuous, or stalked and manifest; pistillate spikes 2–4, cylindrical, 3″–9″ long, the upper 2 contiguous, sessile or subsessile, erect or slightly spreading, the lower subdistant, on slender peduncles ½′–1′ in length, suberect or spreading, sometimes a subradical spike is present on a long, suberect peduncle; bracts leaf-like, sheathing, exceeding the culm; perigynia ovoid or pyriform, nerved, thick, yellowish or golden brown at maturity, obtuse at the apex, longer than the ovate, acute or mucronate scale; stigmas 2 or 3, achenium lenticular, apiculate.

Wet springy ground and banks of streams. June, July.

This interesting and infrequent species may be distinguished by its small pyriform yellowish-brown perigynia and lenticular achenia.

66. Carex glaucodea *Tuckm.*

Stems 6′–20′ high, erect or spreading, smooth; leaves mostly subradical, usually shorter than the culm, 1½″–4″ wide, rough at the extremities, smooth on the lower half, glaucous or pale green; staminate spike subclavate, 6″–9″ long, sessile, sometimes inconspicuous; pistillate spikes 2–4, subdensely flowered, perfectly cylindrical, ½′–1′ long, the upper 2 usually approximate, the lower on erect, exserted stalks ½′–1′ in length, or the lowest remote on a filiform spreading or recurved peduncle 2′–5′ long, glaucous, turning to a dull brown; bracts like the leaves, sheathing, all but the lowest exceeding the culm; perigynia oblong-ovate, numerously finely nerved, of a thick or leathery texture, tapering to an acutish, entire or notched apex, about twice longer than the ovate, acute or cuspidate scale; achenium obovate; style even (not tumid), curved or abruptly bent at the base.

Thin woods and moist places. Rare. June, July. Cayuga and Dutchess counties.

This species may be separated from C. grisea, which it resembles, by its shorter stems and leaves, its more cylindrical spikes, and shorter perigynia, and by its curved styles.

67. Carex grisea *Wahl.*

Stems 1°–2½° high, firm, usually somewhat robust, smooth, or sometimes roughish at the summit; leaves slightly hispid on the upper surface, smooth beneath, 1½″–3″ wide, the highest exceeding the culm, pale green; staminate spike 3″–9″ long, sessile; pistillate spikes 2–4, oblong, thick, loosely or subloosely flowered, ¼′–1′ in length, the upper 2 usually contiguous, the uppermost sessile, the others more or less distant on stiff, erect peduncles ¼′–1′ long, light green or fading to tawny; bracts leafy, sheathing, erect-spreading, or the upper divergent, much longer than the culm; perigynia oblong, obtuse, turgid, finely nerved, about the length of the ovate, cuspidate or rough-awned scale; achenium obovate, sometimes apiculate, with a straight, tumid or bulbous-thickened style.

Moist ground and grassy places. Common. June.

This species frequently forms tufts. Its straight, tumid or bulbous-thickened style articulates at or slightly above its base. A slender narrow-leaved form occurs which closely approaches, and which perhaps is referable to Var. angustifolia *Boott.*

Leaves and bracts alike, sheathing, conspicuously thin, the latter exceeding the culm; perigynia obovoid or ovate-triquetrous, finely striate or nerved, distinctly beaked, shorter than the tri-nerved, pointed or rough-awned scale.

Spikes 3–8 flowered, sheaths smooth . . . . oligocarpa.
Spikes 3–10 flowered, sheaths pubescent . . . . Hitchcockiana.

68. Carex oligocarpa *Schk.*

Stems 6′–18′ high, slender, erect or somewhat diffuse, rough on the upper portion; leaves short, or sometimes equaling the culm, about 1″ wide, slightly rough on the veins beneath and margins;

staminate spike linear or subclavate, subsessile or on a stalk ½′–1′ in length; pistillate spikes 2–4, the upper 1 or 2 contiguous or distinct, short-pedunculate or sessile, the others distant or remote on stalks ½′–1½′ long, all erect, loosely 3–8 flowered on a flexuous rachis; bracts with smooth sheaths, thin, longer than the culm; perigynia obovoid-triangular, with a distinct straight or slightly oblique beak, shorter than the rough-pointed or awned scale achenium obovate, apiculate; style tumid above the minute persistent base.

Woods and shady places. Rare in the eastern part of the State, occasional elsewhere. June.

This species is distinguished by its thin, narrow foliage, few and loosely flowered spikes, nearly straight-beaked striate perigynia, and tri-nerved awned scale.

69. Carex Hitchcockiana *Dew.*

Stems 1°–2° high or more, erect or spreading, rough, or smooth below; leaves short, or the upper equaling the culm, 1′–1½′ wide, thin, more or less hispidly pubescent; staminate spike linear or subclavate, ½′–1′ in length, on a slender, erect peduncle ¼′–1½′ long; pistillate spikes 2–4, loosely 3–10 flowered on a flexuous rachis, the upper two approximate, mostly on included stalks or the highest sessile, the lower distant or remote on erect, slightly-exserted peduncles; bracts and sheaths roughly pubescent, the former mostly surpassing the culm; perigynia oval or obovate, obtusely triangular, striate-nerved, 2″ long, with an abrupt or tapering oblique recurved truncate beak, a little shorter than the broad tri-nerved rough-awned white scale; achenium and style like the last.

Woods. Rare in the eastern part of the State. June, July.

This may be distinguished from the preceding species by its pubescent sheaths, rougher foliage, shorter-stemmed fertile spikes, and by its perigynia, which have a conspicuously oblique or recurved beak.

Var. triflora *Peck n. var.* More slender, with the fertile spikes 1–3 flowered.

Collected on Mt. Defiance. June.

Pistillate spikes 2–6, more or less flexuous, the upper 2 contiguous or approximate, sessile or nearly so, the rest scattered and stalked, or sometimes all subdistant; bracts mostly exceeding the culm; perigynia obtusely angled, prominently nerved and having an abruptly bent or recurved rarely straight beak.

	Lower or radical leaves 8″ broad or more	albursina.
	Lower leaves less than 8″ broad	1
1	Pistillate spikes densely flowered, perigynia ovate	granularis.
1	Pistillate spikes subdensely or loosely flowered	2
2	Upper spikes usually contiguous, the sterile subsessile,	blanda.
2	Upper spikes rarely contiguous, the sterile stalked	3
3	Spikes subloosely flowered, bracts shorter than the culm,	styloflexa.
3	Spikes loosely flowered, bracts longer than the culm	laxiflora.

70. Carex laxiflora *Lam.*

Stems 1°--2° high, erect or spreading, triangular, smooth leaves mostly subradical, short, 1½″-4″ wide, smooth except on the margins, the radical often wider and half as long as the culm; staminate spike linear or clavate, ½′--1′ long, conspicuously stalked or subsessile; pistillate spikes 2--4, linear, loosely flowered on a flexuous rachis ¼′--1′ in length, the uppermost (rarely 2) sessile or short-stalked at the base of the sterile, the others subdistant or the lowest remote, all on erect, exserted peduncles ¼′--1½′ long; bracts leafy, short-sheathed, shorter or slightly longer than the culm; perigynia obovate, strongly nerved, with a straight or slightly recurved beak, exceeding the ovate, obtuse, mostly mucronate white scale.

A subradical spike on a slender, flattened peduncle 2′--2½′ in length is not rare.

Woods, ravines and open places. Common. June.

Var. varians *Bailey* has stouter culms and broader leaves than the type, the fertile spikes a little closer flowered, the upper 2 mostly contiguous to the sterile, the highest sessile, bracts often longer than the culm, the perigynia less strongly nerved.

Var. patulifolia *Carey*, differs from the type chiefly in its broader root leaves, 5″--7″ wide, and in the usually longer bracts, equaling or surpassing the culm.

Very common in damp shades and ravines. May, June.

71. Carex styloflexa *Buckley.*

Stems 12′--18′ high, slender, erect or diffuse, smooth, leaves 2′--4′ long, 1″ wide, the radical longer and 1″--1½″ wide; staminate spike about ½′ long on a slender, smooth stalk ½′–¾′ in length; scales oblong, blunt, light brown; pistillate spikes 2–4, ¼′–½′ in length, 5–10 subloosely flowered, scattered, all but the highest stalked, the lowest usually on a filiform recurved peduncle; bracts mostly shorter than the culm; perigynia obovate, lightly nerved, with a straight or recurved beak, longer than the ovate acute brown scale.

Grassy places. Rare. June. Albany and Cattaraugus counties.

This has been regarded by some as a variety of the preceding species, but it is easily separated by its short spikes.

72. Carex blanda *Dew.*

Stems 8′–20′ high, erect, triquetrous, rough on the angles; leaves 1½″–3″ wide, rough above the middle, equaling or shorter than the culm; staminate spike clavate, 4″–9″ long, sessile or on a stalk ¼′–1′ long; pistillate spikes 3–4, 3″–9″ long, subdensely flowered, the upper 2 usually contiguous to the staminate spike and sessile or nearly so, the lower pedunculate, erect, or the lowest remote on a setaceous peduncle 2′–3′ long, suberect or recurved; bracts leafy, mostly exceeding the culm; perigynia obovate, with a long or short tapering base, prominently nerved, terminating in a short recurved or abruptly bent beak, longer than the ovate, acute or mucronate white scale, more or less diverging at maturity.

Woods and fields. Very common. June.

Rarely among the large forms 1 or 2 of the lower spikes are compressed; occasionally there is but 1 spike, stalked or sessile and contiguous to the staminate, in which case the latter is usually long-peduncled, exceeding the bracts. This species has been considered by some as a variety of C. laxiflora to which it is joined in the Manual, but its short dense pistillate spikes and commonly short sessile staminate spike give it such a distinct aspect that it may be distinguished at a glance.

73. Carex albursina *Sheld.*

Stems 12′–20′ high, erect or spreading, flaccid below, acutely triangular and somewhat winged above, smooth; stem leaves 2′–6′ long, 1½″–3″ wide, the radical longer, 8″–15″ broad, smooth; staminate spike linear, 3″–15″ in length, mostly sessile and often inconspicuous; pistillate spikes cylindrical, loosely flowered on a slightly flexuous rachis ½′–1′ long, the upper 1 or 2 contiguous to the staminate and sessile or nearly so, the lowest on a filiform peduncle 1′–2′ long, all erect or slightly spreading; bracts leafy, 2″–4″ broad, acuminate, the lowest much exceeding the culm; perigynia ovoid-elliptical or obovate, nerved, 1½″–2″ long, half as broad, with a short recurved beak, twice the length of the obtuse mucronate white scale.

Rich moist soil in woods and shaded places. Not common. June. Albany, Cayuga and Jefferson counties.

This species was separated from C. laxiflora, to which it was formerly joined as Var. latifolia *Boott*, because of its broad leaves and bracts and its short sessile staminate spike. Its large perigynia also confirm the validity of its separation.

The fruit of this and the three preceding species shells easily, and the specimens should be collected while it is yet scarcely mature.

74. Carex granularis *Muhl.*

Stems 10′–24′ high, mostly erect, smooth; leaves short, usually much shorter than the culm, 1″–4″ wide, smooth, rough near the apex, sheaths prominently glaucous; staminate spike subclavate, ¼′–1′ long, sessile or short-peduncled, often inconspicuous; pistillate spikes 2–5, cylindrical, compactly flowered, ¼′–1′ in length, the upper 2 mostly contiguous to the staminate spike, sessile or slightly stalked, the others more or less distant on exserted peduncles ¼′–2′ long, erect or the lowest spreading, or rarely on a filiform drooping stalk 3′ long; bracts leafy, rough, the lower sheathing, exceeding the culm; perigynia round-ovate or oblong-conical, prominently nerved, slightly turgid with a short bent entire or notched apex, nearly twice longer than the ovate pointed thin white scale; achenium obovate, minutely dotted, tipped with the abruptly bent style.

Wet or moist ground in meadows and grassy places. Common. June.

It is distinguished by the dense, cylindrical fertile spikes, and the strongly-nerved perigynia.

Var. recta *Dew.* is usually smaller, the spikes less densely flowered, the perigynia with a straight acute or acuminate point.

Staminate spike clavate, pedunculate; pistillate spikes 2–4, short-cylindrical, 3–9 loosely or subloosely flowered, all on exserted erect or spreading filiform stalks, the lowest often subradical or even radical; bracts leafy, sheathed, shorter or longer than the culm; perigynia acutely triangular, finely and closely nerved, with a short recurved or sometimes obsolete point; scale thin, white or brown.

Pistillate spikes pendulous; leaves 2″–5″ broad ...... laxiculmis.
Pistillate spikes erect-spreading, leaves 1″–1½″ broad.... digitalis.

75. Carex digitalis *Willd.*

Stems 6′–18′ high, slender, almost capillary, erect or at length spreading, smooth; leaves about the length of the culm 1″–1½″ wide, rough-margined, bright green; staminate spike 6″–9″ long, its stalk ½′–2½′ in length; pistillate spikes 2–4, loosely 6–9 flowered, the highest subsessile or long-peduncled, the lower subdistant or remote on filiform spreading peduncles 1′–2½′ in length or more, the lowest sometimes pendulous; bracts leafy, sheathing, equaling or exceeding the culm; perigynia triangular-elliptical, finely nerved, with a short, obliquely bent point, nearly twice longer than the acute white scale.

Woods and ravines. Not very common. June.

The species is known by its narrow, 3-veined leaves and the small triangular perigynia. It usually grows in tufts.

76. Carex laxiculmis *Schw.*

Stems 10′–20′ high, slender, suberect or prostrate, smooth; leaves mostly shorter than the culm, 1½″–5″ wide, conspicuously 3-veined, glaucous, rough on the margins; staminate spike clavate, 6″–10″ long, sometimes subtended by a slender green bract 2″–5″ in length, mostly long-peduncled, exceeding the leaf-like sheathing bracts; pistillate spikes 3″–6″ long, densely 3–8-flowered, all except the subsessile highest one on drooping filiform peduncles 1½′–2½′ long; perigynia triquetrous, elliptical, densely nerved, with a short oblique or curved point, exceeding the ovate, obtuse or pointed brown or white scale. (C. retrocurva *Dew.*)

Thin woods and copses. Common. June.

The broad glaucous leaves and drooping spikes on long filiform peduncles characterize this species.

There is a late form (Forma *serotina*) in which the new growth develops fruit soon after the old fruit has matured. In it the staminate spike is inconspicuous or abortive, and the pistillate spikes are erect and on peduncles much shorter than usual.

Staminate spikes clavate; pistillate 2–5, erect, mostly on included stalks; bracts about the length of their long sheaths or obsolete; perigynia acutely angled, finely nerved (obscurely in 80) with a short recurved or straight beak; leaves radical, prominently 3-ribbed (narrow and 1-veined in 80).

Leaves narrow, 1-veined . . . . pedunculata.
Leaves 3-ribbed, bracts conspicuous 1
Bracts obsolete, sheaths purple . . . . plantaginea.
1 Leaves 2″–5″ broad, dark green . . . . Careyana.
1 Leaves 3″–12″ broad, whitish-green . . . . platyphylla.

77. Carex Careyana *Torr.*

Stems 1°–2° high, erect-spreading, smooth; leaves rough beneath or smooth throughout, 2″–5″ wide, shorter than the culm, dark green; staminate spike clavate, 5″–10″ in length, its stalk ½′–1′ long, usually with a scale-like or slender green bract, scales purplish or brown; pistillate spikes 2–3, loosely 2–8 flowered, the uppermost sessile at the base of the sterile, the others scattered, sometimes the lowest remote on a partly included stalk 1′–1½′ long; bracts leafy, as long as their sheaths; perigynia acutely triangular-ovate, 2″–2½″ long, closely nerved, with an oblique or recurved beak, twice the length of the ovate, acute or mucronate purple-brown scale.

Woods and ravines. Rare. May. Cayuga, Genesee and Jefferson counties.

78. Carex platyphylla *Carey.*

Stems 8′–15′ high, slender, erect, at length widely spreading, smooth; leaves shorter than the culm or rarely exceeding it, ¼′–1′ broad, smooth, glaucous or whitish green; staminate spike 4″–10″ long, its peduncle ¼′–1′ in length or rarely subsessile, usually with a scale-like or bristle-shaped bract; pistillate spikes 2–3, 2–10 loosely flowered, scattered, all erect on included stalks;

bracts leafy, about twice the length of the spikes; perigynia ovoid, acutely angled, closely nerved, with a recurved, entire or notched beak, 1½″ long, a little longer than the pointed brown scale.

Woods, hillsides and ravines. Common. June.

This species is easily recognized by its broad pale or glaucous leaves, conspicuous leaf-like bracts and short, loose, few-flowered spikes.

79. Carex plantaginea *Lam.*

Stems 1°–2° high, slender, erect, at length spreading or prostrate, smooth; basal bracts 4–7, acute, dark purple; leaves shorter than the culm, ½′–1′ broad or more, smooth, prominently 3-ribbed; staminate spike subclavate, acute at each end, ½′ in length, its stalk 5″–15″ long, with dark purple scales; pistillate spikes 3-4, 3–10 loosely flowered, ¼′–¾′ long, distant, erect on included peduncles, or the lowest subradical on an exserted stalk 1′–2′ in length; bracts 2″–4″ long, acuminate or bristle-tipped, purple, with dark purple sheaths ¼′–1′ long or more; perigynia triangular ovate, finely nerved, with a short recurved beak, 2″–2½″ long, a little exceeding the ovate, acute, purple-pointed scale.

Shaded banks, hillsides, copses and open woods. Infrequent. May, June.

This is a very distinct species, recognizable at a glance by its broad radical leaves and its purplish sheaths, bracts and scales.

80. Carex pedunculata *Muhl.*

Stems 3′–12′ long, slender, diffuse, smooth; basal bracts purple with acute green points; leaves flat, 1″–1½″ wide, rough beneath, stiff, longer than the culm; staminate spike cylindrical or ovoid, sessile, obtuse or acute, 2″–3″ long, with dark purple scales; fertile spikes 2-4, 2–8 subdensely flowered, slightly staminate at the apex, 2″–4″ in length, the uppermost sessile at the base of the sterile spike, the others subdistant on stalks ¼′–1′ long, suberect or spreading, radical spikes numerous, prostrate on filiform peduncles 2′–6′ long; bracts inconspicuous, green, about the length of the sheaths; perigynia triangular-obovate, minutely downy or smooth, with a long tapering base and a short recurved minutely notched beak, smaller than the broadly obovate awned or cuspidate purplish scale.

Woods and banks. Common. May, June.

This species is characterized by its commonly prostrate growth, inconspicuous bracts and concealed fruit.

It inhabits chiefly dry shaded situations, but is found in meadows, on banks, and amongst shrubbery in rocky places.

Pistillate spikes 3–4, few flowered, on erect or drooping partly included stalks; bracts obsolete or as long as their respective sheaths; perigynia minute, oblong, obscurely nerved, with a bent or straight beak; olive-brown at maturity; leaves short, setaceous or about 1″ wide.

Leaves subradical, not setaceous.	capillaris
Leaves radical, setaceous	eburnea.

81. Carex capillaris *L.*

Stems capillary, 4′–12′ high, erect, smooth; leaves shorter than the culm, 1″ wide or less, rough on the margins, the radical ones numerous, flat, soft, often involute when old; staminate spike clavate, 2″-3″ long, its stalk 3″-9″ in length; pistillate spikes 2–3, scattered, the uppermost usually erect and equaling the staminate spike, the lower on drooping peduncles 3″-12″ long; bracts leaf-like, as long as their respective sheaths or more, the lowest usually exceeding its spike; perigynia oblong, 1″–1½″ in length, nerveless, 2-ribbed, slightly turgid, somewhat thin in texture, olive brown, with a slender, entire roughish beak about twice the length of the ovate obtuse brown scale; achenium narrowly obovoid.

Wet places. Local. Cortland county.

82. Carex eburnea *Boott.*

Stoloniferous; stems 5′–12′ high, capillary, but firm and erect, smooth; leaves bristle-shaped, recurved-spreading, rough above the middle, shorter than the culm; staminate spike linear, 3″–5″ long, sessile or slightly peduncled between the more elevated and conspicuous pistillate spikes, acute at each end, the brown scales often partly concealed by the scarious sheaths; pistillate spikes 2–4, 2–6 densely flowered, 1″-2″ long, approximate on slender stalks 4″–8″ in length, sometimes the lowest distant; sheaths scarious, white with a tinge of brown at the base; perigynia triangular obovate, obscurely nerved, smooth, olive-brown, shining, with a minute round beak, longer than the ovate obtuse or acutish light-brown scale.

Thin soil on or about limestone ledges. June.

☞ A very small species, but one easily known by its setaceous leaves and its very small erect pistillate spikes surpassing the staminate one.

Plant diœcious; staminate and pistillate spikes of the same size and color; bracts, when present, scale-like or setaceous, sheathless; perigynia dark purple, densely hairy, with a short, entire beak; scales blackish purple.

83. Carex scirpoidea *Mx.*

Stoloniferous; stems 6′–15′ high, slender, erect, smooth; basal bracts dark purple, acute or obtuse; leaves subradical, stiff, mostly much shorter than the culm, 1″ wide, smooth; staminate spike subclavate, $\frac{1}{2}$′–1′ in length with a small greenish tri-nerved cuspidate bract and dark purple scales; pistillate spikes $\frac{1}{4}$′–1′ long, densely flowered; bracts setaceous, sheathless; perigynia ovate, very hairy, gradually tapering to a short entire or notched beak, mostly covered by the acutish blackish-purple ciliate scale.

Thin soil covering rocks. Adirondack mountains July.

Plant monœcious; staminate spike clavate, sessile or short-stalked; pistillate spikes 1–5, globular-ovoid, oblong or cylindrical, sessile or short-stalked, the upper 2 contiguous or approximate, or all distinct and the lowest subdistant, each subtended by a scale-like or green bract, the lowest often by a leafy one $\frac{1}{2}$′–2$\frac{1}{2}$′ long; perigynia subrotund, oval or elliptical, obtusely or acutely angled, mostly densely pubescent, abruptly contracted into a slender bifid beak; scale ovate, commonly brown or purplish, equaling or shorter than the perigynia.

	Plant pubescent	pubescens.
	Plant glabrous	1
1	Pistillate spikes on short stems, umbellately clustered,	umbellata.
1	Pistillate spikes not umbellately clustered	2
2	Bracts sheathing, purplish	Richardsonii.
2	Bracts not sheathing	3
3	Staminate spike 3″ long or less	4
3	Staminate spike more than 3″ long	6

4 Culms weak, recurved or reclining 5
4 Culms erect or spreading .... Peckii.
5 Radical spikes present .... deflexa.
5 Radical spikes wanting .... Emmonsii.
6 Staminate spike about ½″ wide, the lowest pistillate spike with a long slender green bract .... Novæ-Angliæ.
6 Staminate spike more than ½″ wide 7
7 Plant stoloniferous, scales of pistillate spikes commonly brown or purplish .... Pennsylvanica.
7 Plant not stoloniferous, scales of pistillate spikes commonly greenish or tawny .... varia.

84. Carex umbellata *Schk.*

Stems 2′–4′ high, erect, growing in dense tufts from strong fibrous roots, somewhat stoloniferous; leaves 2′–10′ long, about 1″ wide, flat, or sometimes involute, rough, stiff, erect or spreading; staminate spike clavate, ¼′–½′ in length, rarely with a pistillate spike at its base; pistillate spikes in clusters of 2 or 3 on stems ½′–2′ long; usually level topped, 3–8 flowered; perigynia ovoid or triangular-obovate, nerveless, lightly pubescent, green or turning to brownish with age, with an abrupt flattish bidentate beak, usually covered by the ovate pointed scale.

Dry or sandy soil and rocky places. Common. May, June.

The umbel-like clusters of pistillate spikes suggest the name of this species. They are often half concealed by the leaves.

Var. vicina *Dew.* A form with 1 or 2 fertile spikes at the base of the sterile spike.

It is found with the typical form.

85. Carex Pennsylvanica *Lam.*

Stoloniferous; stems 6′–18′ high, slender, erect or spreading, rough or smooth, basal sheaths purplish or dull brown, fibrillose; leaves mostly about the length of the culm but sometimes exceeding it, ½″–1½″ wide, rough-margined, bright or dull green, erect or diffuse; staminate spike club shaped, 5″–9″ long, usually sessile, scales oblong obtuse or pointed, brown, or blackish brown; pistillate spikes 1–4, usually 3, globular or oblong, densely or loosely flowered, the upper 2 contiguous, sessile, the lowest 2″–6″ distant, sessile or slightly stalked, bracts scale-like acute or bristle-tipped, or sometimes the lowest leaf-like and 9″-18″ in length; perigynia subrotund or obovate, obtusely angled, densely or lightly pubescent, indistinctly nerved, abruptly contracted at the base, and narrowed above into a short bifid beak, covered by the ovate acute or acuminate, dark purplish or light brown scale.

Dryish soil in woods, copses or open places. Very common. May, June.

Var. separans *Peck.* Pistillate spikes 1–3, usually 2, the uppermost approximate to the short-stalked dark-brown sterile spike, the lowest 5″–10″ distant; perigynia with a longer and more slender beak; otherwise like the type (Var. distans, Report 46, p. 51).

Along or within the borders of woods. Jefferson and Otsego counties. June.

Var. gracilifolia *Peck, n. nom.* Leaves long and slender, ½″–⅔″ wide, sometimes slightly involute and almost capillary, about equaling or sometimes considerably surpassing the slender culm. (Var. angustifolia l. c.)

Light or sandy soil in woods or open places. It often grows in tufts. This variety is common on Long Island. May.

Because of the frequent previous use of the varietal name under which this plant was published it is thought best to give it a new name.

Var. glumabunda *Peck, n. var.* Stems 8′–18′ high, rather weak and often somewhat drooping, frequently growing in definite tufts; pistillate spikes mostly short and sessile as in the type, but sometimes the lowest 3″–8″ long, conspicuously stalked or on a capillary peduncle 2′–8′ long which issues from the axil of the uppermost leaf, the others near the staminate spike and contiguous to each other or the lower sometimes 4″–6″ distant, these occasionally sterile and acute at the apex; scales conspicuously brown or blackish brown, oblong-ovate or lanceolate, sharp-pointed or cuspidate, longer than the perigynia and widely spreading at maturity. (Forma paleacea in part, l. c.)

Sandy soil. Albany and Suffolk counties.

Very rarely a second long-peduncled spike issues from the axil of one of the lower leaves. In all these varieties the bract of the lowest sessile spike is sometimes longer than its spike and green or foliaceous.

86. Carex varia *Muhl.*

Stems 6′–18′ high, rather stout, erect or spreading, roughish above the middle; basal bracts bright purple, fibrillose; leaves mostly shorter than the culm, 1″–2″ wide, rough; staminate spike clavate, 4″–12″ long, sessile or short-stalked, tawny or brown; pistillate spikes 2–5, usually 3, globular or oblong, sessile or sometimes the lowest short-peduncled, all separate or the upper 2 occasionally contiguous, each with a scale-like bract or the lower 2 subtended by leaf-like bracts ½′–2′ long; perigynia subrotund or obovate, pubescent, abruptly contracted into a short bifid beak, covered by the ovate, pointed, pale-greenish, whitish or tawny-brown scale. (C. communis Bailey, Gray's Man., 6th ed.)

It is noteworthy that the smallest plants often have the long staminate spikes, and commonly the tall plants the short spikes which are 4″–6″ long. In his description of this species Muhlenberg remarks, "variat spica mascula abbreviata et elongata." No other species in this group is known to have such a variable staminate spike.

In some of its forms C. Pennsylvanica approaches this species, but the absence of creeping rootstocks, the paler scales of the pistillate spikes and the more constant green foliaceous bract of the lowest spike will distinguish this plant. The scale of the pistillate spike is often entirely whitish or scarious except the green midrib. The species is found chiefly in hilly or rocky places in loose or gravelly soil. It seems to avoid sandy soil. It matures its fruit in May and June.

The name C. varia *Muhl.* formerly applied to this species was referred by Prof. Bailey to C. Emmonsii *Dew.*, and in its place he substituted C. communis *Bailey.* This name was discarded in the List of Plants of Northeastern North America, and C. pedicellata *Britton* adopted in its stead.

87. Carex Emmonsii *Dew.*

Stems capillary, 3′–15′ high, suberect or procumbent, smooth; basal sheaths dull purplish-brown, mostly green at the extremities, slightly fibrillose; leaves lax, about ½″ wide or more, flat, rough-margined, shorter than the culm or sometimes surpassing it; staminate spike slender, subclavate, sessile about 3″ long, acute or obtuse, commonly pale, but dark brown in the variety; pistillate spikes 2--4, ovoid, sessile, the upper 2 contiguous, the other distinct, densely 3–8 flowered, each with a scale-like bract, the lowest often bristle-tipped, or rarely leaf-like; perigynia triangular-oval, pubescent, with a long slender base, contracted above into a narrow, oblique, bifid beak, usually about the length of the body; scale ovate-oblong, pointed, whitish, barely tinged with brown, as long as the perigynium.

Commonly in dry places but sometimes in low wet soil. Common. May, June.

The species is easily recognized by its weak reclining or prostrate stems, contiguous or approximate pistillate spikes and short, narrow, sessile, staminate spike.

Var. distincta *Howe n. var.* Light or glaucous green; staminate spike linear ½″ wide, 2″--5″ long; pistillate spikes distinct, 2″--5″ apart, the lowest with a green bract 2--4 times the length of the spike, 3--5 flowered; perigynia obovoid, minutely pubescent, with a rather short, straight or oblique bifid beak, about the length of the acute white scale.

This variety seems to be intermediate between the type and C. Novæ-Angliæ.

Var. colorata. Differs from the type only in its dark purple scales, which give a much darker color to the spikes than in the type. Common in Westchester county. It is C. varia *Muhl.* var. colorata *Bailey* in the Manual.

89. Carex Novæ-Angliæ *Schw.*

Stoloniferous; stems 4′–12′ high, slender, diffuse or erect, slightly rough above the middle, usually purple and a little fibrillose at the base; leaves mostly shorter than the culm, ½″–1″ wide, flat, erect or spreading, rough-margined, bright green; staminate spike linear, 3″–6″ long, ½″ wide, short-peduncled or subsessile, light brown; pistillate spikes 1–3, ovoid, densely flowered, the upper 2 contiguous, or sometimes 3″–6″ apart, sessile or the lower one on a short pedicel, each with a scale-like awned bract longer than the spike, the lowest distant, conspicuously stalked, subtended by a green filiform bract nearly or fully equaling the culm; perigynia triangular obovoid, slightly pubescent, tapering to a short base and abruptly contracted above into a short, slender, bidentate beak, mostly covered by the ovate acute or pointed whitish scale.

Damp soil in shaded hilly places. Rare. Rensselaer county. June.

The distant lowest pistillate spike with its long slender green bract and the very narrow short-peduncled staminate spike are noticeable features of this species.

90. Carex Peckii *Howe.*

Strongly stoloniferous; stems 3′–18′ high, slender, erect or spreading, smooth, purplish and lightly fibrillose at base; leaves mostly much shorter than the culm, 1″–1½″ wide, open and flat, soft, erect or spreading, rough-margined, bright green; staminate spike linear, 1½″–3″ long, sessile, often invisible, scales brown, white-margined; pistillate spikes 2–3, ovoid, sessile, 2–8 closely flowered, the upper two crowded, usually concealing the staminate spike, each with a green setaceous or short awned, divergent bract mostly not longer than the spike, the lowest 1½″–2″ distant, subtended by a green divergent bract about twice the length of the spike; perigynia triangular-elliptical, 1¾″–2″ long, ¾″ broad, hairy, with an evenly tapering base and a short bidentate beak, longer than the ovate acute or cuspidate whitish or brownish scale; achenium exactly elliptical, ½″ wide, substipitate, the style deciduous at its base.

Dry soil in woods and open places. May, June. Albany, Essex, Jefferson, Cayuga and Yates counties.

This is C. Emmonsii *Dew.* var. elliptica *Boott.*

91. Carex deflexa *Hornem.*

Densely tufted; stems 2′–6′ high, capillary, curved, diffuse, smooth; basal bracts acute or cuspidate fibrillose, dull brown or purple; leaves shorter or longer than the culm, ½″–1″ wide, smooth, open and flat; staminate spike small and inconspicuous; pistillate spikes 1–3, usually 2, contiguous, 2–6 flowered, 1″–1½″ in length and thickness, green or brownish, the lowest slightly peduncled with a green filiform bract 2″–4″ long; radical spikes occasional; perigynia pyriform, tricostate, thinly pubescent, contracted above into a short, flat, slightly curved or oblique beak, a little exceeding the ovate acute or acutish, green and purple glume.

Adirondack mountains. July.

It forms small dense tufts, the short capillary stems often being prostrate at maturity, the longer leaves partly concealing the fruit; or, they are suberect, and the spikes drooping; by which, and the apparent absence of the sterile spikes, this delicate species may be readily known.

Var. Deanei *Bailey.* Stems 6′--12′ high, mostly longer than the leaves; staminate spike 2″--3″ long, less than ½″ wide, often oblique; pistillate spikes 4--8 flowered, 2″--3″ apart, the lowest conspicuously stalked, its bract leaf-like and longer than the culm; radical spikes few or numerous.

Adirondack mountains.

92 Carex Richardsonii *R. Br.*

Stoloniferous; stems 4′--9′ high, stiff, erect or recurved-spreading, rough; basal bracts dull purple or tawny; leaves shorter than or as long as the culm, 1″--1½″ wide, smooth, rough margined, their extremities often involute, stiff, erect or recurved-spreading; staminate spike clavate, about 1′ long, on a short stalk or subsessile, conspicuously mottled; pistillate spikes 1--2, 3″--9″ long, densely flowered, approximate, erect, the lowest on an included stalk, its sheath (or bract) 6″--9″ long, acute or acuminate, usually covering the lowest scale, dark purple or brown; perigynia subglobose or obovoid, thickly pubescent, obscurely nerved, with a long tapering base, contracted above into a short point with an entire or erose orifice; scale ovate-oblong, obtuse, purplish-brown with scarious margins.

Dry ground. Rare. Monroe county.

This species seems to be quite local. It is, however, well marked by its purplish bracts and by its spikes appearing as if spotted with purple or brownish-purple.

93. Carex pubescens *Muhl.*

Stems 1′–2′ high, erect, hairy; leaves shorter than the culm 1½″–2½″ wide, pubescent, dull green; staminate spike subclavate, on a peduncle 3″–6″ long, erect, tawny; pistillate spikes 2–4, oblong or short-cylindrical, subdensely flowered, 5″–9″ long, approximate, the upper 2 sessile or nearly so, the lowest on stalks 3″–6″ in length, all erect; bracts conspicuous, the upper setaceous, the lowest leaf-like, 1′–2′ long; perigynia acutely triangular-obovate, densely hairy, 2″ long, ¾″ wide, obscurely nerved, with a prominent bifid beak, a little longer than the oblong-ovate, cuspidate white scale.

Wet, grassy places. Common. June.

It is distinguished from the other species of this group by its larger size and general pubescence.

Staminate spike single, stalked, often fertile at the apex; pistillate spikes 3–5, cylindrical, densely or loosely flowered on a straight or flexuous rachis, all on filiform more or less drooping peduncles; bracts sheathing, longer or shorter than the culm; perigynia obtusely or sharply triangular ovate or fusiform with a long tapering beak, slightly inflated.

	Pistillate spikes densely flowered	1
	Pistillate spikes loosely flowered	2
1	Spikes clavate or cylindrical, green, perigynia sharply angled	prasina.
1	Spikes cylindrical, fulvous, perigynia obtusely angled	castanea.
2	Perigynia short-stalked	arctata.
2	Perigynia sessile	3
3	Perigynia tapering into a long beak	debilis.
3	Perigynia contracted into a rather short beak	glabra.

94. Carex prasina *Wahl.*

Stems 15′–30′ high, slender, often diffuse, slightly scabrous on the acute angles; leaves shorter than the culm, rough at the summit and on the margins, 1½″ wide or less: staminate spike cylindrical or club-shaped, 1′–1¼′ long, on a filiform peduncle ¼′–1′ in length, mostly drooping, often with a few pistillate flowers at the apex; pistillate spikes 3–4, cylindrical, ½′–1½′ long, densely flowered or loosely flowered at the base, on filiform nodding stalks, the upper 2 or 3 approximate, the lowest remote on a peduncle 1½′–2½′ in length; bracts leafy, the lower ones usually surpassing the culm, the upper 1 or 2 often slender, scarcely exceeding the spike; perigynia acutely triangular, few-nerved, tapering each way from below the middle, terminating above in a short, smooth, minutely-notched or entire beak, exceeding the oblong-ovate, acute or cuspidate white scale; achenium triangular-elliptical, apiculate.

Moist or wet fields and woods. Common. May, June.

The pistillate spikes, when fresh, are pale green and more densely flowered than in any of the other members of this group.

This is C. miliacea *Muhl.* of the older botanies.

95. Carex arctata *Boott.*

Stems 1°–2° high, slender, erect-spreading or diffuse, smooth, somewhat stoloniferous, basal bracts dark purple; leaves mostly shorter than the culm, radical leaves numerous, 1½″–5″ wide, smooth, rough-margined; staminate spike linear, 6″–9″ long, its filiform stalk 5″–8″ in length, often inconspicuous; pistillate spikes 3–5, ½′– ¼′ long, loosely flowered on a flexuous rachis, all on drooping peduncles ½′–3′ long, scattered, or the upper 2 approximate, the highest usually extending above the staminate spike, the lowest remote; bracts leafy, sheathing, or the upper mostly filiform equaling or extending above the culm; perigynia ovate, stipitate, nerved, obtusely angled, tapering to a short bidentate beak, longer than the white, acute or cuspidate scale; achenium obovoid, apiculate.

Woods and shaded banks. Common. May, June.

The stipitate perigynia constitute a distinguishing feature of this species.

C. arctata × castanea *Bailey.* Pubescent; spikes 1″ wide, loosely flowered, green or yellowish, somewhat approximate, erect-spreading or drooping; perigynia ovate, nerved, hairy, with a short bifid beak a little exceeding the acute whitish scale. (C. Knieskernii *Dew.*) In the List of the Plants of Northeastern North America this stands as C. arctata × formosa *Bailey.*

96. Carex debilis *Mx.*

Stems 1°–2½° high, slender, erect or spreading, smooth, sometimes stoloniferous; leaves shorter or longer than the culm, 1½″–2″ wide, spreading, rough; staminate spike linear, pistillate at the summit, short-stalked or subsessile; pistillate spikes 3–5, linear or narrowly cylindrical, loosely flowered on a flexuous rachis 1′–3′ long, the 2 or 3 upper approximate on drooping stalks ½′–2′ in length, or the highest nearly erect, the lowest remote, pendulous on a penducle 2′–3′ long, rarely branched at the base; bracts leafy, sheathing, exceeding or equaling the culm; perigynia fusiform, nerved, 5″ long, tapering into a long slender hyaline bifid beak, twice the length of the obtuse or acutish white scale: achenium exactly elliptical, stipitate, apiculate.

Fields and woods. Very common. June, July.

The species is distinguished by its long flexuous fertile spikes and its spindle-shaped perigynia.

Var. strictior *Bailey*. Stems taller and mostly erect: leaves firmer, 2″ wide, spikes stiff and erect or erect-spreading: perigynia deep green, a little longer than the scale.

Var. interjecta *Bailey*. Stems tall, erect: pistillate spikes nearly erect, often compound at base, alternately flowered: perigynia shorter than in the type. Differs from the last in its narrower leaves and more loosely flowered spikes.

97. Carex glabra *Boott.*

Stems 1°–2° high, slender, erect or somewhat spreading, smooth: basal bracts dark purple: leaves about the length of the culm or less, 1″–1½″ wide, rough, bright green: staminate spike linear, 1′ long or more, short-peduncled, often fertile at the apex; pistillate spikes 3–4, cylindrical, flexuous, subloosely flowered, 1′–1½′ long, the upper 2 approximate, the lowest remote, all on filiform drooping peduncles 1′–4′ long, or the uppermost short-stalked and suberect: bracts leafy or the upper ones filiform, sheathing, usually exceeding the culm: perigynia narrowly oblong-elliptical or lanceolate, nerved, 2½″–3″ or more in length, gradually tapering into an empty sharply bidentate beak, twice the length of the obtuse brown-margined scale.

Wet places. Rare. June, July. Oneida and Otsego counties.

The few flowered slightly flexuous fertile spikes and the large perigynia are characteristic of this species, which approaches C. debilis in appearance.

98. Carex castanea *Wahl.*

Stoloniferous: stems 1°–2° high, erect, acutely angled, lightly pubescent, basal bracts dull brown, pubescent: stem leaves 1′–3′ in length, the radical half as long as the culm or more, 1½″–2″ broad, soft-hairy, conspicuously veined, glaucous or fulvous green: staminate spike clavate, usually acutish at each end, 6″–9″ long, on a stiff stalk ½′–1′ in length, bright brown: pistillate spikes 2–4, oblong, or cylindrical, densely flowered, sometimes sterile at the apex or base, ½′–1′ long, 2″ wide, the upper 2 or 3 aggregated on drooping stalks ½′–1′ in length, the lowest distant and pendulous; bracts variable, the lowest leafy, 2′–3′ long, sheathing, the upper setaceous; perigynia ovate-lanceolate, 2½″ long, turgid, 2-ribbed, obscurely nerved, spreading, tapering into a long smooth or roughish, mostly entire beak, about one-third longer than the acute, fringed, brown scale.

Very rare. May, June. Oneida and Herkimer counties.

Well marked by its glaucous leaves, and its short, yellowish or brown spikes, the upper subtended by setaceous bracts. This is C. flexilis *Rudge* in the older botanies.

Perigynia moderately inflated.

Staminate spikes 1–4, the terminal stalked; pistillate spikes 2–5, sessile or short-stalked (the lower ones long-stalked in 99), approximate or distant, ovoid, oblong or cylindrical; bracts leafy, longer or shorter than the culm; perigynia ovoid or oblong-conic, nerved, smooth or pubescent, somewhat coriaceous in texture, with a short bifid beak.

Perigynia scabro-pubescent.......................... scabrata.
Perigynia smooth or granular, pistillate spikes distant, purple.................................... polymorpha.
Perigynia pubescent.................................. 1
Perigynia smooth or slightly rough, spikes not purple.. 2
1 Pistillate spikes cylindrical, leaves involute........... filiformis.
1 Pistillate spikes cylindrical, leaves not involute....... 3
3 Leaves and bracts exceeding the culm............. lanuginosa.
3 Leaves and bracts shorter than the culm............ 4
4 Spikes ovoid or oblong, approximate................. vestita.
4 Spikes oblong-cylindrical, distant..................... Houghtonii
2 Pistillate spikes 6″–12″ long, 2″–4″ wide, leaves involute, striata.
2 Pistillate spikes 2′–3′ long, 4″–5″ wide, leaves flat.... riparia.

99. Carex scabrata *Schw.*

Stems 1°–2° high, rather stout, rough on the angles; leaves numerous, the upper ones surpassing the culm, 2″–3″ wide, rough, light-green; staminate spike clavate, 6″–9″ long, its peduncle 2″–6″ in length; pistillate spikes 3–5, cylindrical, densely flowered above, thinly at the base, approximate or scattered, the upper 2 sessile and erect, the others on erect or spreading stalks ½′–2½′ in length; bracts leafy, sheathless or sometimes the upper ones short-filiform, the lowest surpassing the culm; perigynia ovoid, nerved, slightly turgid, scabro-pubescent, contracted into a short obliquely toothed beak, exceeding the ovate acute or cuspidate brown scale; achenium obovate, acutely triangular.

Scattered or in patches along streams and in wet places. Common. June.

A rather coarse but bright-green species with the fertile spikes of a bristly or squarrose appearance when mature. It is somewhat stoloniferous.

100. Carex filiformis *L.*

Stems 1°–3° high, slender, erect, obtusely angled, mostly smooth; basal bracts 1′-2½′ in length, pointed, purplish-brown, more or less fibrillose; leaves 1″–1½″ wide, carinate, prominently grooved, smooth, rough margined, becoming doubled or involute when dry, shorter than the culm, the radical ones numerous and longer; staminate spikes 1–3, rarely 4, clavate or cylindrical, 1′–2′ in length, on a slender peduncle 1′–2½′ long, surrounded by a scale-like, bristle-tipped, or short setaceous bract; pistillate spikes 1–4, usually 2, cylindrical, densely flowered, or sometimes loosely at the base, subdistant or remote, sessile, or the lowest short-stalked, often staminate at the apex, ½′-1½′ in length; perigynia obtusely triangular, ovoid, nerved, of a thick coriaceous texture, densely pubescent or tomentose, slightly inflated, contracted into a short, sharply toothed beak, mostly covered by the ovate lanceolate, pointed or rough cuspidate brown scale, the latter usually widely spreading at maturity.

Swamps and wet meadows. Common. June, July.

This species may be recognized by the long sterile, and grayish fertile spikes, and by the usually erect, narrow, carinate leaves. It seems to prefer cold elevated swamps and bogs, though by no means limited to them.

101. Carex lanuginosa *Mx.*

Stems 1°–2° high, stout, erect, acutely angled, roughish above the middle; root stock somewhat creeping; leaves open and flat, smooth, 1″–1½″ wide, shorter than the culm; staminate spikes 1–3, ½′–1½′ long, on stiff peduncles ½′–1½′ in length; pistillate spikes 2–4, ½′–1′ in length, 2½″–3″ thick, densely flowered, cylindrical, the uppermost usually sessile, the lower distant on short stalks, or the lowest remote on a slender peduncle 1′-1½′ long, spreading or suberect, the others mostly ascending; bracts leafy, the lowest sheathing, longer or shorter than the culm; perigynia ovate, nerved, densely hairy, abruptly contracted into a short bidentate beak, about the length of the ovate cuspidate brown spreading scale.

Wet meadows, marshes and swales. Not rare. June.

This differs from the preceding in its open flat leaves, shorter bracts and stalked fertile spikes. The carinate or involute leaves of the former cause them to appear to be much more narrow than those of this species, which is considered by some to be a mere variety of C. filiformis.

102. Carex vestita *Willd.*

Stoloniferous; stems 1°--3° high, rigid, acutely angled, rough at the summit; basal bracts fibrillose; leaves 1″--1$\frac{1}{2}$″ broad, rough, shorter than the culm; staminate spikes 1--2, clavate, mostly sessile, $\frac{3}{4}$′--1$\frac{1}{4}$′ long; pistillate spikes 2-4, ovoid or short-oblong, 5″--9″ in length, compactly flowered, approximate or distant, rarely remote, sessile, erect, frequently with a few staminate flowers at the apex; bracts leafy, as long as the spikes, or the lowest 1$\frac{1}{2}$′ long; perigynia ovate, nerved, densely hispid-pubescent, contracted into a short beak, the white orifice erose or slightly notched; scale ovate, cuspidate, brown with a white margin.

Wet or dry sandy places. Rather rare. Albany, Richmond and Suffolk counties.

It is credited by Dr. Torrey to the western counties of the State, but if there, it must be very scarce.

103. Carex polymorpha *Muhl.*

Stems 1°--2° high, stout, strict, acutely angled, smooth; leaves 1′--6′ long or more, 1″--3″ broad, smooth; staminate spikes 1--4, the terminal short or long-peduncled, clavate, $\frac{1}{2}$′--1′ long, frequently with a few pistillate flowers at the base; pistillate spikes 1-2, usually cylindrical, densely flowered, occasionally sterile at the apex. $\frac{1}{2}$′--1$\frac{1}{2}$′ long, on exserted erect stalks $\frac{1}{2}$′--1′ in length; bracts leafy, sheathing, mostly as long as the spike; perigynia oblong-ovate, nerved, conspicuously turgid, minutely papillose or smooth, abruptly contracted into a slender purplish beak with an oblique, entire or slightly notched orifice, longer than the ovate, obtuse, dark purple scale.

"Western counties." Dr. Torrey in the N. Y. State Flora. It does not appear to have been collected in the State recently.

104. Carex striata *Mx.*

Stoloniferous; stems 15′--30′ high, stiff and erect, acutely angled, rough near the summit; basal bracts purple, fibrillose; leaves shorter or longer than the culm, 1″--2″ wide, the upper surface rough, involute when dry; staminate spikes 2--3, the terminal one 1′--2′ long, short stalked or subsessile, the lowest with a setaceous bract ½′--1′ in length; pistillate spikes 1--2, distant or remote, the highest sessile, the lowest short-peduncled, densely or subdensely flowered, 6″--18″ long, erect; bracts leafy, shorter or longer than the culm, or the highest about equaling it; perigynia oblong-ovate or subglobose, prominently nerved, smooth or roughish with a scattered pubescence, somewhat divergent, abruptly contracted into a short bifid beak with whitish teeth, about twice the length of the ovate, obtuse or acute, thin scale.

Wet places and boggy shores of ponds. Suffolk county. June.

Var. brevis *Bailey.* More slender, the leaves and bracts shorter and narrower (1″ wide), the fertile spikes narrower, the highest sometimes sterile at the apex and the perigynia pubescent; otherwise like the type.

105. Carex Houghtonii *Torrey.*

Stoloniferous; stems 1′-2′ high, stiff, erect, acutely angled, rough at the summit; leaves shorter than the culm, 1″-2″ wide, rough-margined; staminate spikes 1-2, clavate, the terminal one on a stiff peduncle ½′-1′ long, the lowest often with a setaceous or bristleform bract as long as the spike or longer; pistillate spikes 1–3, cylindrical or short oblong, subdensely flowered, ½′–1′ long, subdistant, the upper two sessile, the lowest on an exserted stalk 3″-9″ in length, all erect; bracts leafy, sheathless, or the lowest short-sheathed, equaling or exceeding the culm; perigynia broadly ovate, prominently nerved, rough-pubescent, abruptly contracted into a short, slender, sharply toothed beak, a little exceeding the ovate pointed or rough-awned brown scale; achenium broadly obovate, minutely dotted.

Sandy soil. Rare. Essex and Saratoga counties. June, July. Sometimes the mature perigynia become reddish-brown or almost chestnut color.

106. Carex riparia *Curtis.*

Stoloniferous; stems 2°–3½° high, stout, acutely angled, rough above the middle, flaccid at the base; leaves longer than the culm, 2″–5″ wide, mostly smooth on the upper surface, rough beneath, erect or spreading, glaucous; staminate spikes 2–5, cylindrical, the highest 1½′ in length on a stalk 1′ long or less, the lowest with a setaceous bract 1′–1½′ long; pistillate spikes 2–4, densely flowered, or loosely at the base, cylindrical or clavate, 1½′–3′ long, 4″–5″ thick, distant, the uppermost subsessile, the others short-peduncled, all erect, or the lowest sometimes spreading; bracts leafy, equaling or exceeding the culm; perigynia oblong-conical, finely nerved, smooth, gradually tapering into a short conical bidentate beak, a little longer than the ovate-lanceolate, awned scale; achenium narrowly obovate, apiculate.

Bogs, swamps and wet places. Common. June.

This is readily determined by the large erect spikes and oblong-conical, finely-nerved, olive brown perigynia. It is C. lacustris *Willd.*

Staminate spikes 1–5, stalked or the lower ones sessile, rarely fertile at the apex; pistillate spikes 1–4, cylindrical or short-oblong, densely or subdensely flowered, subapproximate, distant or remote, sessile or nearly so, erect; bracts leafy, the lower short-sheathing or sheathless, mostly surpassing the culm; perigynia turgid, ovate-lanceolate, nerved, pubescent or smooth, with a long bifurcate beak, the teeth mostly recurved-spreading.

Perigynia smooth .... aristata.
Perigynia hairy 1
1 Staminate spikes 1–2 .... hirta.
1 Staminate spikes 2–5 .... trichocarpa.

107. Carex hirta *L.*

Stoloniferous; stems 8′–24′ high, slender, erect or spreading, smooth below the summit, obtusely angled; leaves shorter than the culm, or, in low forms, the radical surpassing it, 1″–1½″ wide, scabro-pubescent, densely hairy on the sheaths, light green; staminate spikes 1–2, cylindrical, ½′–1¼′ long, on a slender peduncle 1′–2′ in length, the lowest ½′ long and sessile; pistillate spikes 1–3, distant or remote, the highest sessile, the lowest on an included stalk ½′–1′ in length, erect, subdensely flowered, ¾′–1½′ long; bracts leafy, the lowest sheathing, surpassing the culm; perigynia ovate-oblong or lanceolate, prominently nerved, turgid, downy-pubescent, 3″ long, tapering into a long slender bifurcate beak, longer than the ovate rough-awned scale.

Introduced. Rare or local. Cayuga county. June, July.

It is separated from the next by its light green foliage and downy sheaths, and by its fewer, softer fertile spikes.

108. Carex trichocarpa *Muhl.*

Stems 2°–3° high, rigidly erect, acutely angled, smooth or hispid on the angles above; leaves stiff, rough, 2″–3″ wide, longer than the culm; staminate spikes 2–5, linear or subclavate, ½′–1½′ long, the terminal short-stalked, rarely with a few fertile flowers at the base or apex, the lowest, which is frequently the longest, with a bristleform bract, each tapering to an acute apex; pistillate spikes 2–4, distant, short-peduncled, or the highest subsessile, erect, cylindrical, closely flowered above, somewhat loosely at the base, 1′–2½′ long or more; bracts leafy, sheathless, longer than the culm; perigynia oblong-ovate, prominently nerved, hispidly pubescent, gradually tapering into a long bifurcate beak, the teeth sharp and spreading; scale ovate-lanceolate, thin, brown with scarious margins, shorter than the perigynium; achenium obovate, apiculate, smooth.

Marshes and wet places. Common. June, July.

Prominently marked by its 2–5 narrow acute sessile sterile spikes, and its rough-hairy, deeply cleft perigynia.

Var. imberbis *Gray.* A reduced form with rough sheaths, smooth perigynia and mostly longer scales.

109. Carex aristata *R. Br.*

Stems 1°–2½° high, erect, stout, acutely angled, smooth below the spikes; leaves longer than the culm, 1½″–3″ wide, smooth, rough on the margins, stiff, yellowish green; staminate spikes 1–4, club-shaped, the uppermost on a stalk ½′–1′ long; pistillate spikes 2–4, distant, the upper two sessile, the lowest on a short included stalk, densely flowered, 9″–24″ in length; bracts leafy, the lowest sheathing, mostly longer than the culm; perigynia oblong-ovate, smooth, prominently nerved, 3″–3½″ in length, gradually tapering into a long and slender bifurcate beak, the awn-like teeth recurved, a little longer than the ovate-lanceolate, hispidly-awned scale; achenium elliptical, apiculate, very minutely papillose.

Very rare. June. Jefferson county.

Staminate spike solitary; pistillate spikes cylindrical, pendulous; perigynia stipitate, lanceolate, finely and densely nerved, with a slender deeply cleft beak, strongly reflexed at maturity.

Perigynia with long, very strongly recurved teeth .. comosa.
Perigynia with long straightish or divergent teeth .. Pseudo-Cyperus.

110. Carex comosa *Boott.*

Stems 2′–3′ high, robust, erect, acutely angled, flaccid at the base, rough above the middle smooth below; leaves surpassing the culm, 4″–5″ broad or more, rough toward the extremities; staminate spike cylindrical, 1½′–1¾′ in length, subsessile or short-stalked, with a filiform bract mostly exceeding the culm; pistillate spikes 3–5, 1′–2½′ long, 5″–7″ wide, compactly flowered, the upper two, or sometimes three, approximate, the lowest distant or remote, all on slender pendulous peduncles, frequently sterile at the apex; bracts leafy, sheathless, surpassing the culm; perigynia stipitate, lanceolate, densely nerved, gradually tapering into a long, slender bifurcate beak, the awn-like teeth strongly recurved; perigynia reflexed at maturity; scale lanceolate, bristle-tipped, a little shorter than the perigynium.

Shores and wet places. Common. July, August.

The strongly recurved teeth of the reflexed perigynia, the former as conspicuous at the time of flowering as at maturity, are characteristic of this species, which is closely allied to the next following one, of which, by some, it is considered a variety.

111. Carex Pseudo-Cyperus *L.*

Stems 2′–3′ high, stout, sharply angled, smooth below the spikes, slightly flaccid at the base; leaves rough, 2″–4″ wide, much surpassing the culm; staminate spike cylindrical, 1½′–2½′ in length, short-peduncled, with a filiform bract one-half the length of the spike or more; pistillate spikes 2–5, compactly flowered, exactly cylindrical, 2′–3′ in length, usually one or more compound at the base and sometimes sterile at the apex, the upper ones mostly approximate and the lowest distant, all pendulous on filiform peduncles ½′–2′ long; bracts leaf-like, sheathless, rough on both surfaces, much surpassing the culm; perigynia triangular-lanceolate, prominently nerved, smooth, stalked, gradually tapering into a short forked beak, the sharp teeth straight or spreading; scale lanceolate, rough-awned, about the length of the perigynia which are strongly reflexed at maturity.

Shores and wet places. Common. July, August.

Closely like the preceding when mature, but the spikes are more evenly cylindrical, and the teeth of the perigynia less spreading, and not so strongly recurved. Also, in its early stage it has been confounded with the next following species, which it resembles, but its longer spikes and peduncles should distinguish it.

Perigynia much inflated.

Staminate spike single (rarely 2), stalked, sometimes fertile at the summit or base; pistillate spikes 1–4, approximate, or the lowest distant and spreading, the upper subsessile and suberect or all on short stalks, spreading or drooping, densely flowered, squarrose.

Pistillate spikes erect, 3″ wide, perigynia 8-nerved . . . Baileyi.
Pistillate spikes 6″ wide, perigynia 10-nerved . . . . tentaculata.
Pistillate spikes 5″–6″ wide, the lower drooping . . . . . . hystricina.

112 Carex hystricina *Muhl.*

Stems 15′–4′ high, erect, acutely angled, rough above the middle or near the summit, smooth and flaccid at the base; leaves mostly surpassing the culm, 1½″–3″ wide, rough above the middle and on the margins; staminate spike single (rarely 2), cylindrical, 1′–2′ long, mostly short-peduncled, light brown; pistillate spikes 2–3, oblong or cylindrical, densely flowered, ½′–1½′ long, the lowest often with 1 or 2 short branches at the base, approximate, the uppermost subsessile and spreading, the others on short nodding peduncles; bracts leaf-like, with obsolete sheaths, much surpassing the culm; or the highest often filiform and about equaling it; perigynia ovoid or ovate-lanceolate, smooth, many-nerved, gradually tapering into a long, sharply toothed beak; scale, ovate-lanceolate, rough-awned, shorter than the widely divergent or horizontally spreading perigynia.

Wet places. Very common. June, July.

This species may be distinguished from the next by its longer-stalked drooping spikes and by its smaller, many-nerved perigynia. In cold, springy, sterile soil a small form occurs with only one or two fertile spikes which are erect and nearly sessile. The scales of the sterile spikes of this species and C. Pseudo-Cyperus are strikingly alike.

113. Carex tentaculata, *Muhl.*

Stems 18′–30′ high, erect or spreading, acutely angled above the middle, rough at the summit, mostly smooth below; leaves 1½″–3″ wide, rough, longer than the culm; staminate spike linear, very rarely with an additional short spike at its base, 1½′–2½′ long, short-peduncled; pistillate spikes 2–4, compactly flowered, ovoid-cylindrical, 1′–1½′ long, the upper two contiguous, sessile or nearly so, erect or divergent, the others approximate or the lowest sometimes remote on a short stalk, horizontally spreading; bracts leaf-like, far surpassing the culm; perigynia turgid-ovoid, thin, about 10-nerved, widely divergent when mature, tapering into a long, slender, roughly-toothed beak, about twice the length of the linear-lanceolate, rough-awned scale; achenium ovoid, minutely papillose, with a long curved persistent style.

Wet places. Very common. June, July.

This species may be identified by the short-stalked, horizontally-spreading lowest spike, and by the spreading, slender beaks of the perigynia, which give to the spikes a coarse, comose appearance. The name C. lurida, *Wahl.*, is applied to this plant in the last edition of the Manual. Rarely the staminate spike is fertile at the apex.

Var. flaccida (*Bailey*). Smaller, with 2–4 loosely flowered, approximate, sessile spikes 1′ long or less; the fruit longer than in the type and less abruptly contracted into the beak; the spikes of a dull or reddish-brown color.

Var. parvula *Paine*. A diminutive form 5′–10′ high with one or two globose or ovoid sessile densely flowered reddish-brown spikes.

C. tentaculata x lupulina (*Bailey*.). Resembles C. lupulina, but is every way smaller; staminate spike stalked, pistillate spikes approximate, sessile, erect-spreading, dull yellowish or greenish; perigynia turgid-ovate, about 15-nerved, the long slender beaks widely divergent; scales with long rough awns shorter than the perigynia.

In a meadow bog in Poestenkill with the above-named species and C. hystricina, the latter being the most abundant.

114. Carex Baileyi *Britton*.

Stems 19′–20′ high, slender, erect, acutely angled, smooth or rough near the spikes; leaves 1″–1½″ wide, rough, longer than the culm; staminate spike linear, ½′–1′ long, short-stalked or sessile; pistillate spikes 1–3, compactly flowered, ovoid or exactly cylindrical, ½′–1¼′ in length, 2″–3″ thick, rigidly erect, sessile, or the lowest subsessile; bracts leaf-like, sheathless, far surpassing the culm; perigynia turgid-globular, about eight-nerved, evenly divergent, very abruptly contracted with a long, slender bidentate beak, a little exceeding the long, rough-awned scale; achenium triangular-elliptical, tapering to each end, minutely papillose, with a strongly curved style. (C. tentaculata var. gracilis *Boott*. C. lurida var. gracilis *Bailey*.)

Swamps and wet places. Adirondack mountains. July.

This slender handsome species bears but a slight resemblance to the preceding, of which it was long ago made a variety by Dr. Boott; nor have intermediate forms been found which might possibly connect it with that species. On the other hand, it has, since it was first discovered, maintained its perfect identity as a mountain-loving species. It does not appear to descend into the lower regions, where the other species is so common. Even dwarf forms of the allied species have their fertile spikes thicker than those of the most luxuriant forms of this, and the two maintain their distinctive characters when growing side by side and under similar conditions. The name C. montamans was given to this species in the manuscript of this Report, but owing to the delay in its publication it becomes necessary to substitute for it the earlier published name of Prof. Britton.

Pistillate spikes 9″–12″ broad, erect on stiff peduncles or the upper sessile; bracts prominently sheathing; perigynia 6″ long and 2″ broad, ascending. Spikes hop-like in appearance.

Pistillate spikes 1′–2′ long, achenia without prominent mammillate angles.............................. lupulina.
Pistillate spikes 2′–3′ long, achenia distinctly mammillate on the angles.............................. lupuliformis.

115. Carex lupulina *Muhl.*

Stoloniferous; stems 2°–3° high, erect, robust, acutely angled, smooth; leaves 3″–6″ broad or more, smooth, rough-margined, conspicuously nodose, reticulated on the upper surface, much surpassing the culm; staminate spike single (rarely two), cylindrical, 1′–3′ in length on a peduncle ½′–1½′ long; pistillate spikes 2–6, closely flowered, 1′–2′ long, 8″–10″ broad, the upper ones approximate, short-stalked or sessile, the others somewhat scattered and longer peduncled, or sometimes all sessile or nearly so, the lowest usually on a stalk ½′–1½′ long; bracts leaf like, prominently sheathing, much surpassing the culm; perigynia ovate-lanceolate, conspicuously stipitate, prominently nerved, thin, 6″–9″ long, erect-spreading, gradually tapering into a long bidentate beak, nearly twice the length of the lanceolate, awn-pointed scale; achenium triquetrous, sharply angled, stipitate, about 1½″ long, scarcely 1″ broad, tapering each way from the middle, the apex continuous with the persistent tortuous base of the style.

Swamps and water holes. Common. July.

Var. pedunculata *Dew.* Differs in its more scattered prominently peduncled spikes, its usually long-stalked sterile spike and the more divergent perigynia.

C. lupulina × retrorsa *Dudley.* Perigynia straw-colored, horizontally spreading; scale acute or short-awned.

116. Carex lupuliformis *Sartwell.*

Stems 2°–3° high, stout, smooth, usually stoloniferous; leaves longer than the culm, 3″–6″ wide, smooth, rough-margined; staminate spike clavate, 1½′–3′ long, often long-stalked; pistillate spikes 2–5, mostly 4, cylindrical, closely flowered, the upper 3 contiguous, sessile, the others short peduncled, the lowest distant or remote on an exserted stalk ½′–1′ in length, all erect and stiff, 2′–3′ long, 9″–12″ broad or more; bracts foliaceous, sheathing, far surpassing the culm; perigynia ovate-acuminate, 5″–9″ long, much inflated, strongly nerved, thin, more or less spreading, tapering from a stalked base into a long cylindrical, bidentate beak, about twice the length of the ovate lanceolate, pointed or rough-awned scale; achenium nearly as broad as long, with a mammillate protuberance on each angle, and a long curved style. (C. lupulina var. polystachya *Schw.* and *Torr.*)

Marshes. Rare. Yates and Putnam counties. July.

The long spikes and peculiar achenia characterize this species.

Perigynia moderately or much inflated, ascending, divergent or deflexed.

Staminate spike single (rarely 2), clavate, stalked or sessile, rarely androgynous; pistillate spikes 1–5, globose, oblong or short cylindrical, sometimes sterile at the apex, compactly subdensely or alternately flowered, sessile or peduncled, erect or spreading, the upper contiguous or approximate, the others distinct or scattered or all scattered, green or yellowish-green at maturity; bracts leaf-like, with conspicuous or obsolete sheaths, erect or divaricate, longer than the culm; perigynia ovoid, lanceolate or awl-shaped, nerved, mostly smooth with a short notched or long bifurcate beak.

Spikes short-cylindrical, leaves involute .... extensa.
Spikes globose or ovoid, distant, bracts sheathing 1
Spikes globose or oblong, contiguous above, bracts obsolete 2
1 Spikes 4–8, distant, perigynia awl-shaped .... Collinsii.
1 Spikes subdensely or densely flowered, perigynia not awl-shaped 3
3 Leaves 2″–6″ wide .... folliculata.
3 Leaves about 1″ wide .... Michauxiana.
2 Spikes 3–8-flowered, leaves involute .... oligosperma.
2 Spikes more than 8-flowered, leaves not involute 4
4 Perigynia deflexed when mature, its beak bent ..... flava.
4 Perigynia with a straight beak 5
5 Perigynia small, with a short, minutely notched beak .. Œderi.
5 Perigynia much inflated, 6″–8″ long 6
6 Spikes 15–30 flowered, perigynia 25–30 nerved .... Grayii.
6 Spikes 3–12 flowered, perigynia 15–20 nerved ...... intumescens.

117 Carex Grayii *Carey.*

Stems 12′–30′ high, stout, acutely angled above, smooth; leaves surpassing the culm, 2″–3″ wide, rough, light green; staninate spike linear or sub-clavate, 1′ long, often inconspicuous, sessile or short-peduncled; pistillate spikes 1–3, usually 2, densely flowered, globular, contiguous or subdistant the uppermost sessile, the lower short-peduncled, erect, 6″-9″ thick; bracts leafy, longer than the culm; perigynia turgid-ovate or ovoid, 25–30 nerved, 6″-9″ long, smooth, widely spreading and deflexed, tapering into a long bidentate beak, about twice the length of the broadly ovate, acute scale.

Wet places in the central and western part of the State, rare in the eastern part. July.

The large yellowish-green spikes, mostly contiguous and of a bur-like aspect, sufficiently mark this fine species. It is related to the next following species to which it has sometimes been subjoined as a variety. It is C. Asa-Grayi *Bailey.*

Var. hispidula *Gray.* Perigynia hispidly-pubescent. Greene county.

118 Carex intumescens *Rudge.*

Stems 15′–30′ high, slender, erect, acutely angled, smooth below the middle, sometimes with a few short stolons; leaves 1½″–3″ broad, rough, longer than the culm, dark green; staminate spike cylindrical, ¾′–2′ in length, subsessile or on a stalk ½′–1½′ long; pistillate spikes 1–3, 5–10 loosely or subdensely flowered (rarely 1–3 flowered), globular, contiguous or approximate, sessile or the lowest on a short stalk 3″–6″ in length, dark green, often becoming blackish in drying; bracts leafy, sheathless, much surpassing the culm; perigynia turgid-ovoid, 15–20 nerved, widely spreading, tapering into a long, smooth or roughish bidentate beak, about twice longer than the oblong-ovate cuspidate scale.

Wet places in fields or woods. Very common. June, July.

This species has more slender culms, darker foliage, fewer flowered spikes and fewer nerved perigynia than C. Grayii, to which it is closely related. It is quite variable. In shaded places there is a very slender form with one to three perigynia in a spike; also in open places there is a very slender form with two to three scattered spikes having one to five rather small perigynia in each. These sometimes assume a reddish-brown color even before maturity.

119. Carex folliculata *L.*

Stems 15′–30′ high, slender, erect, smooth; leaves 2″–6″ wide, rough beneath, the lowest short and long-sheathing, the upper surpassing the culm; staminate spike small and often inconspicuous, ½′ long or more, sessile or short-peduncled; pistillate spikes 3–4, 10–20 subloosely flowered, globose-ovoid, 5″–8″ broad, approximate, distant or remote, the uppermost sessile, the lower on exserted peduncles ¼′–1′ long, all erect, green or tawny; bracts leafy, sheathing, longer than the culm; perigynia ovate-lanceolate, many-nerved, inflated, smooth, widely spreading, gradually tapering into a short bidentate beak, longer than the ovate rough-awned, white scale.

Swamps and wet places. Common. June, July.

The species is easily recognized by its short, lower stem leaves, and by its usually distant green or yellowish, subglobose spikes. On the sand plains west of Rome and in sphagnous marshes of the Adirondack region a short form occurs, having the pistillate spikes approximate, four of them being included in a space of 2½′–3′.

120. Carex Michauxiana *Bœckl.*

Stems 10′–20′ high, stiff, smooth; leaves exceeding the culm, 1″–1½″ wide, rough or sometimes smooth below the middle, yellowish-green; staminate spikes 3″–6″ long, sessile, mostly inconspicuous; pistillate spikes 1–3, densely flowered, globose-ovoid, the upper contiguous and sessile, the lowest distant or remote on an exserted peduncle ½′–1′ long, yellowish-green; bracts leafy, sheathing, longer than the culm; perigynia lanceolate, numerously nerved, inflated, smooth, erect, spreading or widely divergent, tapering into a short, slender bidentate beak, twice longer than the oblong, obtuse, light-brown scale. (C. rostrata *Mx.*, C. Michauxii *Schw.*)

Swamps and bogs. Adirondack region. July.

More slender than the last; spikes fewer, more densely flowered, with the perigynia shorter and more slender, and the scale much smaller and awnless. An occasional form has the lowest spike on a peduncle five or six inches long.

121. Carex Collinsii *Nutt.*

Stems 6′–20′ high or more, slender, erect, rough above the middle; basal bracts purple; leaves exceeding the culm, 1″–1½ wide, rough, bright green; staminate spike linear, 3″ long ½″ wide, sessile; pistillate spikes 2–4, distant, sessile or the lowest on a short exserted peduncle, all erect, 4–8 loosely flowered, green; bracts leafy sheathing, longer than the culm; perigynia awl-shaped, finely nerved, smooth, slightly inflated, 6″ long, reflexed, with a long, slender, deeply cleft beak, the awn-like teeth deflexed at maturity; scale lanceolate, cuspidate, less than half the length of the perigynium. (C. subulata *Mx.*)

Swamps and wet places. Very rare. Long Island and Richmond county. June, July.

122. Carex oligosperma *Mx.*

Stems 15′–30′ high, slender, erect or somewhat spreading, slightly rough on the acute angles above; leaves as long as the culm, 1″ wide, becoming involute, smooth or rough-margined; staminate spikes 1 or 2, clavate, ½′–1½′ long, on stalks ¼′–1′ in length; pistillate spikes 1–2, globular or ovoid, 3–8 flowered, subdistant, the uppermost sessile, the lowest usually short-stalked, sometimes half staminate; bracts leaf-like, sheathless, shorter or longer than the culm; perigynia turgid ovate, 2″–2½″ long, 1½″ wide, prominently nerved, ascending, contracted into a short slender bidentate beak, longer than the ovate obtuse brown scale.

Bogs and marshes. Northern part of the State. July, August.

Conspicuously marked by its tall slender stems, involute leaves and few flowered, ovoid spikes.

123. Carex flava *L.*

Stems 1°–2° high, erect, smooth; leaves shorter than the culm, 1″–1½″ wide, mostly smooth, yellowish-green; staminate spike subclavate, about ½′ long, sessile or short-stalked, erect or oblique, sometimes small and inconspicuous; pistillate spikes 1–4, ovoid or globular, compactly flowered, aggregated and sessile or the lowest subdistant and short-peduncled, yellowish-green or fulvous; bracts leaf-like, sheathless, divaricate, longer than the culm; perigynia turgid-ovate, prominently nerved, smooth, tapering into a long, slender bent or recurved bidentate beak, strongly reflexed at maturity; scale oblong-ovate acute or obtusish, brown, much shorter than the perigynium; achenium short, triangular, obovate, apiculate, blackish-brown.

Bogs shores and wet places. Very common and variable. June to August.

A form sometimes occurs in which the staminate spike is fertile at the apex.

Var. graminis *Bailey.* Differs from the type in its much smaller size, longer leaves which exceed the culm, its mostly erect bracts, and in its smaller, usually straight perigynia. The beaks are deeply cleft as in the type and occasionally slightly rough.

This variety is not rare in the Adirondack region.

Var. fertilis *Peck n. var.* Stems 15′--20′ high, firm and erect, smooth; leaves 1½″--2″ wide; staminate spike invisible; pistillate spikes 4--5, ovoid or short-oblong, 5″--6″ long, 3″ wide, compactly flowered, the upper 3 aggregated, sessile, the lowest subdistant on a partly included stalk 3″--5″ in length; bracts short-sheathed, divaricate and recurved, 3′--8′ long, or the upper sometimes setaceous; perigynia yellowish-green with long rough beaks, a little longer than the oblong, acute deep brown scale.

Low moist ground. Dutchess county. June.

The staminate spike is apparently almost or wholly fertile.

124. Carex Œderi *Ehrh.*

Stems 5′–20′ high, slender, smooth; leaves mostly exceeding the culm, 1″ wide or more, smooth, yellowish green, fading to fulvous when old; staminate spike 3″–5″ long, often androgynous, sessile; pistillate spikes 2–4, ovoid or short cylindrical, 3″–8″ long, densely flowered, aggregated, or the lowest subdistant, all sessile and erect, sometimes 1 or 2 proliferously branched at the base, yellowish-green; bracts leaf-like, erect, longer than the culm, or the upper sometimes setaceous; perigynia obovoid, straight, prominently nerved, divergent or ascending, contracted into a short bifid or slightly notched smooth beak, longer than the ovate acute thin brown scale; achenium triangular, obovate, apiculate, sharply angled, blackish-brown.

Wet places. Common, especially in the western part of the State. July, August.

This is easily separated from C. flava, to which it is closely allied, by its much smaller spikes and smaller perigynia with a shorter, straight, smooth, slightly notched beak. In the last edition of the Manual it is referred to C. flava as Var. viridula *Bailey.*

125. Carex extensa *Good.*

Stems 1′–2′ high, slender but strict, smooth; leaves shorter than the culm or sometimes surpassing it, involute, smooth; staminate spike clavate, 8″–10″ long, subsessile; pistillate spikes densely flowered, ovoid or short cylindrical, 4″–9″ long, 2½″–3″ wide: the upper ones approximate, sessile, the lowest remote on a short partly included stalk; bracts like the leaves or the uppermost often setaceous, the lowest sheathing, surpassing the culm; perigynia ovate, prominently nerved, ascending or widely divergent, gradually tapering into a short bifid beak, longer than the ovate acute or obtuse mucronate deep-brown scale; achenium elliptical, substipitate.

Introduced and local. Coney Island and Long Island.

Distinguished from the last by its stiff involute leaves, less approximate spikes and larger, firmer perigynia.

Spikes 1–4, the upper half or more of the terminal one fertile, sterile below, the others fertile, densely flowered; perigynia long-beaked, squarrose at maturity.

126. Carex squarrosa *L.*

Stems 1½′–3′ high, stiff and erect, acutely angled, smooth; leaves surpassing the culm, 1½″–4″ wide, lax and spreading, smooth, or rough above the middle; spikes 1–4, ovoid or cylindrical, densely flowered, 6″–12″ long, 4″–6″ wide, usually approximate, short-peduncled, or the lowest on a stiff stalk ½′–1′ long, all erect, the terminal one pistillate above, staminate below; bracts leafy, longer than the culm, or the uppermost sometimes not exceeding its spike; perigynia turgid, obovoid, lightly few nerved, thin and papery, abruptly contracted into a long slender bifid beak as long as the body, the teeth short and thin, horizontally spreading at maturity; scale lanceolate, mostly concealed by the crowded perigynia; achenium elliptical.

Moist meadows and swales. Common. June, July.

This is a very distinct and peculiar species not closely related to any other in our limits.

Forma robusta *Peck.* Stouter, leaves firmer, mostly erect; spikes 8″–12″ long, 6″–7″ wide, 2′ apart, the lowest on a slender drooping pedundcle 2′ long.

Staminate spikes 1–4, short or long-stalked, often pistillate at the base or apex; pistillate spikes 1–5, cylindrical, usually densely flowered, the upper approximate (clustered in 127), sessile or short-stalked, erect or spreading, the lower sometimes drooping, or all distant, short stalked or sessile, erect or ascending, sometimes sterile at the apex, straw-colored or tawny; bracts like the leaves, the lower sometimes sheathing, equaling or surpassing the culm; perigynia ovate or globular-ovoid, much inflated, nerved or nerveless, ascending or spreading (reflexed in 127) shining, with a prominent bidentate beak. (Spikes pendulous, loosely flowered and perigynia globular with a needle-shaped beak in 133.)

	Perigynia large, 1½″–3″ wide	1
	Perigynia small, less than 1½″ wide	2
1	Pistillate spikes 2 or more, ascending	Tuckermani.
1	Pistillate spikes 1 or 2, perigynia widely spreading	bullata.
2	Pistillate spikes less than 4″ wide	3
2	Pistillate spikes 4″ wide or more	4
3	Spikes erect or spreading	monile.
3	Spikes drooping	longirostris.
4	Spikes contiguous, perigynia reflexed	retrorsa.
4	Spikes approximate or distant, perigynia not reflexed,	5
5	Spikes distant	utriculata.
5	Spikes approximate or the lowest only distant	Schweinitzii.

127. Carex retrorsa *Schw.*

Stems densely clustered, 2°–3° high, firm and erect, smooth with obtuse angles; leaves much longer than the culm, 1½″–4″ wide, rough, bright green; staminate spikes 1–3, often slightly pistillate above or at the base, cylindrical, 1′–2′ long; pistillate spikes 3–5, densely flowered, cylindrical, 1′–2′ long or more, 4″–5″ thick, the upper contiguous and erect on short included stalks, the lowest sometimes distant or remote on a short or long partly drooping peduncle, one or more often compound at the base; bracts leaf-like, short-sheathing, or sometimes the uppermost filiform, all much surpassing the culm; perigynia ovoid, prominently few-nerved, thin, strongly reflexed, tapering into a long bidentate beak; scale short lanceolate, usually invisible.

Wet places and water holes. Common. June, July.

Readily identified by the clustered spikes and reflexed perigynia.

Var. Hartii *Gray.* Slender; fertile spikes more or less distant, stalked, loosely flowered; perigynia slightly reflexed. (C. Hartii *Dew.*) This is regarded by Prof. Britton as a distinct species.

128. Carex Tuckermani *Dew.*

Stems 1½°–3° high, stout, the acute angles rough; leaves rough, 1½″–2″ wide, exceeding the culm; staminate spikes 1–3, cylindrical, 1′–1½′ long, on a stalk ½′–1′ in length, the lowest sometimes with a few pistillate flowers at its base; pistillate spikes 2–4, densely flowered, oblong or cylindrical, ¾′–2′ in length, 4″–6″ thick, rather distant, the uppermost sessile, erect-spreading, the remainder peduncled, the lowest sometimes remote and drooping; bracts leaf-like, sheathless, longer than the culm; perigynia large, ovate, prominently nerved, thin, 4½″–5″ long, 2½″–3″ thick, contracted into a slender bidentate beak, twice the length of the lanceolate acute or pointed scale.

Wet places in shaded stations or open fields. Common. June, July.

The rather short thick spikes and the large ovate shining perigynia are characteristic of this species. When very young the perigynia of this species and of C. intumescens, C. Grayii and some others with inflated perigynia are very pale or almost white.

129. Carex bullata *Schk.*

Stems 1°–2° high, slender, erect, acutely angled, rough above, smooth below the middle, dark purple and fibrillose at the base; leaves smooth or roughish, stiff, mostly erect, 1″–1½″ wide, about the length of the culm; staminate spikes 2–3, cylindrical or subclavate, ½′–1½′ in length on stalks 6″–9″ long; pistillate spikes 1–2, densely flowered, 6″–9″ (rarely 1′) long, 3″–5″ thick, sessile and erect, or, when 2, approximate or remote, the uppermost short-stalked or sessile, the lowest on a slender peduncle 1′ long or less, erect or slightly spreading; bracts leafy with obsolete sheaths, usually exceeding the culm; perigynia ovate, much inflated, nerved, thick, shining, widely divergent, tapering into a long, smooth or minutely roughened, bidentate beak, longer than the lanceolate acute or obtuse scale.

A very rare species but one well marked by its 1–2 short thick spikes, and its large shining widely divergent perigynia. No specimens of it are in the State Herbarium, but it is said to occur in Westchester county and in the valley of the Mohawk.

130. Carex monile *Tuckm.*

Stems 2°–3° high, slender, erect, rough on the acute angles above the middle; leaves longer than the culm, 1½″–2½″ wide, rough at the top and on the margins, lax and somewhat spreading; staminate spikes 2–4, cylindrical or clavate, 1′–1½′ in length, usually on a stalk 1′ long; pistillate spikes 1–3, densely flowered, cylindrical, 1′–2½′ long, 3″–4″ thick, scattered, the upper ones sessile and erect or erect-spreading, the lowest on a slender spreading stalk ½′–1′ in length, or sometimes sessile and erect; bracts leaf-like, with obsolete sheaths, far surpassing the culm; perigynia globose-ovate, much inflated, thin and papery, nerved, somewhat divergent, gradually tapering into a long bidentate beak, about twice the length of the acute or pointed scale.

Wet places, margins of streams, etc. Common. July.

It may be known by the slender stems and lax leaves, and by the 2–3 distant or remote, mostly erect, narrow, densely flowered spikes, and the globose thin shining perigynia. Forms sometimes occur with a single pistillate spike, and such forms having the spike unusually thick might easily be mistaken for C. bullata. The species is very common in the Adirondack region.

131. Carex utriculata *Boott.*

Stems 2°–4° high, stout, acutely angled above the leaves, smooth, flaccid, conspicuously reticulated below the middle; leaves surpassing the culm, 3″–5″ broad, nodulose-roughened, dark green; staminate spikes 3–4, the terminal one short stalked, the others sessile, ½′–3′ in length, the lowest with a slender bract exceeding its spike; pistillate spikes 2–5, densely flowered, sometimes one or more staminate at the apex, cylindrical, 1½′–4′ long, 4″–6″ thick, scattered, the upper sessile, the lower short-stalked, all erect or nearly so; bracts leafy, the lowest short-sheathing, far surpassing the culm; perigynia small, turgid-ovate, of a thick texture, ew-nerved, divergent, abruptly contracted into a cylindrical, sharply-toothed beak, longer than the lanceolate acute or awned scale.

Swamps, bogs and margins of streams. Common. June, July.

The spikes are longer than in the last species, the perigynia are smaller and firmer. The species may be recognized by the nodose-netted stems and leaves. It is common in the Adirondack region where there are small forms, Var. minor *Boott*, with spikes scarcely more than 1′–1½′ long.

132. Carex Schweinitzii *Dew.*

Stoloniferous: stems 1°–2° high, erect, rough on the acute angles; leaves longer than the culm, 1½″–3″ broad or more rough, yellowish-green; staminate spikes 1–2, clavate, 9″–12, long on peduncles ½′–1′ in length; pistillate spikes 3–4, densely flowered, often loosely at the base, and sometimes compound, occasionally staminate at the apex, cylindrical, 1′–2′ long or more, 3″–4″ thick, approximate, mostly on short spreading stalks, or sometimes the lowest remote on a filiform nodding peduncle 2′–2½′ long; bracts leaf-like, short sheathing or not sheathing, longer than the culm; perigynia small, turgid-ovoid, few-nerved, thin, divergent, gradually tapering into a slender bidentate beak, nearly twice the length of the rough-awned scale.

Swamps and borders of streams. Oneida and Herkimer counties. Apparently rare or wanting elsewhere. June.

133. Carex longirostris *Torr.*

Stems 20′–30′ high, slender, erect, smooth; leaves shorter than the culm, 1½″–2″ wide, rough, light or glaucous green; staminate spikes 2–3, clavate, ½′–1′ long, short-peduncled, yellowish-white; pistillate spikes 2–5, loosely flowered, cylindrical, 1′–2′ long, distant, the uppermost short-stalked and mostly erect, sometimes half staminate above, the others on filiform, drooping peduncles 1½′–6′ in length; bracts leafy or the uppermost setaceous, the lowest barely sheathing, shorter than the culm; perigynia turgid-globular or globose-ovoid, 2-ribbed, nerveless, divergent, smooth, very abruptly contracted into a slender bifid beak longer than the body; scale lanceolate, whitish, often with a long awn-like point, equal to or a little shorter than the perigynia.

Dry rocky places in woods or clearings. Not common. June.

A form with spikes less than one inch long is Var. minor *Boott.*

(F.)

EDIBLE AND POISONOUS FUNGI OF NEW YORK.

The figures and descriptions of the "Edible and Poisonous Fungi of New York" here given have been prepared with a view to meet a growing and popular demand for information concerning a much-neglected department of economic botany, and to facilitate and encourage a more general acquisition of a knowledge of the natural food products of our State. Many who would gladly avail themselves of the agreeable and highly nutritious food afforded by our edible fungi are debarred from doing so by a lack of the knowledge necessary for a proper discrimination between the edible and the poisonous or worthless species. With this knowledge, the fear of the bad would no longer prevent the use of the good. With it many whose circumstances are such as to make it difficult or impossible to procure an adequate supply of animal food might often obtain a very good substitute for it by the slight labor of gathering it in the fields and woods.

European works on this subject are less satisfactory, because the species in this country are not wholly the same as in that. Some of them are not readily procurable because of their high price, others and cheaper ones are less desirable because of deficiency in the number or the character of their illustrations. It has been the purpose of the writer in his attempt to elucidate this subject to be satisfactorily profuse in illustrations. The plates are of such dimensions as to admit of figures of natural size in all except a single species. Whenever it was necessary a whole plate has been devoted to a single species. In nearly all cases the appearance of the young as well as of the mature plant has been shown, and in several instances well-marked varieties have also been illustrated. For the benefit of the botanical student the spores of each species have been figured, magnified to a uniform scale of four hundred diameters. A compound microscope and a micrometer are necessary to ascertain the shape and size of the spore.

Of each species a brief diagnosis or botanical description is first given for the use of botanists. This is followed by a more full description in plain and simple language which may readily be comprehended by the general reader. This description has been made as concise as was compatible with completeness and with the avoidance of technical terms. It is supplemented by a statement of the usual dimensions of the plant, its habitat or usual place of growth, its time of appearance, its qualities as an esculent and its relations or resemblances to other species.

Sixty-three edible species have been figured on thirty-nine plates, three poisonous ones on three plates and one unwholesome one on one plate. Of the sixty-three edible species, about forty have been tested as to their edible qualities by the writer. Of the remainder, all save four have been eaten without harm by some of his acquaintances or correspondents. The four unproved species have been recorded as edible by various writers and no word of suspicion has ever been raised against them, so that it may be asserted most confidently that no species here represented as edible is at all dangerous or deleterious if used with moderation and after proper selection and preparation. All the species are not equally sapid, tender or desirable, but any of them may be eaten with perfect safety, if collected in good condition and eaten in reasonable quantity. Nine of these species were first published as edible in the State Museum reports, seven having been proved by the writer, two by his friends.

Other species belonging to our flora have been classed as edible by various writers, but they are not included in the present work, because opportunity has not yet been found for a personal trial of their edible qualities or for making accurate figures of them. It is to be hoped that in due time it may be possible to include them in a supplementary publication which shall complete this work.

That there are dangerous species whose use as food should be most carefully avoided is an acknowledged fact, but the number of such species is far less than many suppose. According to the authority of those who have especially investigated this subject, the dangerously poisonous species found in this country all belong to a single genus, *Amanita*. About a dozen species of this genus have been found in our State, and of these, two are known to be harmless and edible, three or four only are commonly classed as poisonous, and probably a single one of these is responsible for a vast majority of the fatal accidents resulting from "mushroom poisoning." There are, however, some species in other genera that are capable of causing nausea, vomiting and derangement of the digestive organs. They are unwholesome because of their persistently bitter, acrid or otherwise disagreeable flavor, or because of toughness of texture or the possession of some quality repugnant to the stomach. They may indeed cause sickness and vomiting, but the irritation they induce is soon apparent and quickly causes the rejection from the system of the offending substance and then the normal condition of the system is soon restored. Sometimes recovery in such cases may be hastened by the administration of some simple emetic which will assist the stomach in its efforts to expel the unwholesome material.

The dangerous species do not appear to possess such irritating qualities. The symptoms of sickness do not appear till several hours after eating, generally eight to fifteen. Then the face exhibits an ashy paleness, there is distress in the region of the stomach, resulting in nausea, vomiting and relaxation of the bowels, the extremities become cold, the pulse feeble, the sight affected, and finally stupor and death follow if relief is not obtained. To this kind of poisoning, *atropine*, the active principle of *Atropa belladonna*, has been found to be an antidote. It has been administered in doses of $\frac{1}{180}$ to $\frac{1}{90}$ of a grain according to the severity of the case, and the dose may be repeated if necessary. It should be administered in subcutaneous injections.

For two thousand years or more people have made use of mushrooms for food and from time to time death has resulted from their use, either through ignorance or carelessness. Still men persist in their use, and those who would use them if they dared frequently ask how they may distinguish mushrooms from toadstools, the word "toadstools" indicating to them poisonous or harmful species. Many attempts have been made to answer this question and many rules have been formulated by the observance of which, it has been claimed, all difficulty and danger would be avoided. Some of these rules are entirely unreliable and to others there are so many exceptions that they are misleading and practically worthless. The rules vary according to the standpoint of the one proposing them. One who considers the Common mushroom the only edible species seeks to separate it from all others, and says "avoid all which have white gills and a hollow stem." This rule precludes the use of many mushrooms which are just as good as the one it sustains, and at the same time it is not definite enough to limit the selection to the one intended. Another, thinking of the Delicious lactarius which has an orange-colored juice, says "reject all such as have a white milky juice." This rule forbids the use of several species of lactarius that are no more harmful and scarcely less sapid than the Delicious lactarius. Again we are told by some one who has in mind the poisonous amanitas, to "discard all mushrooms that have a warty cap or a membranous sheath at the bottom of the stem." This would be a very good rule if we might add to it the sentence, unless you know the species to be edible and safe. The Orange mushroom, which is deemed an edible species of first quality, has a membranous sheath at the base of the stem, and the Reddish amanita has a warty cap and yet is not only harmless but very good, so that the rule which would forbid the use of these species excludes more than is necessary. The same may be said of those directions which require the rejection of all mushrooms having a viscid cap or an acrid taste or whose flesh on being broken quickly changes to a blue color. And as to the old-fashioned silver spoon test, by which it was thought that a silver spoon thrust among cooking mushrooms would be quickly tarnished if they were poisonous and remain bright if they were edible, that was long ago proved to be most unreliable by a fatal experiment in which several persons lost their lives because the cook put confidence it. We are, therefore, forced to conclude that no abstract rule is at present known by which the good can in every case be separated from the bad. The only safe and reasonable way to do this is *to learn to recognize each species by its own peculiar specific characters.* It is in this way that we recognize the useful and esculent species among flowering plants, and it must be in this way that we select our edible mushrooms. A little more care may be necessary in one case than in the other, because of a closer resemblance in some cases between good and bad mushrooms than between good and bad flowering plants. The principle that is to govern in this matter is the same in both cases. The greater the number of edible species clearly recognizable by any one the greater the field from which he may draw his supplies. If he is acquainted with but one species he should limit his use of mushrooms to that one species, unless he can avail himself of the more extensive knowledge of some one else or unless he is willing to take the risk of eating some poisonous or unwholesome species. In a few instances it is possible to affirm of certain groups of species or of certain genera, that no deleterious species are known in them. Thus we have in this State six species of morels and no morel is known to be poisonous. It is, therefore, possible for any one who is able to separate a morel from all other fungi, to eat morels with considerable confidence though he may not be able to distinguish one species of morel from another. The same may be said of puff balls. No harmful species is known among them, and he who can discriminate between puff balls and all other fungi does not incur very much risk in eating any puff ball of good flavor, though he may not be able to distinguish the species from each other. The probability is that he will suffer no harm by so doing, but there is not absolute safety. It is possible that some rare species exists having deleterious qualities which have not yet been ascertained by experiment, hence the lack of absolute certainty; for we know by experience among the amanitas that excellent edible species may exist in the same genus with and be closely related botanically to dangerously poisonous species. Therefore, those rules which say all morels, all puff balls, and all fairy clubs may safely be eaten are too sweeping, and would be better if modified by the words, "so far as known."

Many mushrooms have a farinaceous taste or odor, or both taste and odor are of this character. Some have thought that all species having this meal like flavor are edible, and indeed many of them are, and no dangerously poisonous species is known to have it. But occasionally a species has this flavor combined with or followed by a bitter or otherwise disagreeable flavor which would at least render the mushroom undesirable if not unwholesome. So that rules designed to aid in the selection of edible species have their exceptions and their weak points as well as the rules designed to protect us against the poisonous species. There is, therefore, no escape from the necessity of acquiring a knowledge of each species we would utilize, sufficiently clear and exact to enable us to distinguish it from all others. Whatever value investigators and experimenters, who are willing to take some risks for the good of others, may find in such rules or general principles, it is evident that they are not sufficiently definite, exact and reliable for general use. To any one willing to avail himself of the experience of others and to apply himself sufficiently to learn to recognize the species they have found to be edible, nature opens a field productive of much palatable and nutritious food, which is too often left to decay where it grew.

But some care is necessary in the selection of specimens of species known to be edible. The plants selected should be in good condition. Well grown, sound, fresh specimens only should be chosen. Old, partly-decayed, water-soaked, worm-eaten or withered plants should be discarded. Even young and sound ones should not be kept too long before they are cooked. They are in some cases very perishable and deteriorate rapidly. If more have been collected at one time than are needed for a single meal it will generally be better to cook them all at once and keep them in a refrigerator in the cooked rather than in the raw state. As a rule it is better to cook them the same day they are collected. In the case of the inky fungi this will be absolutely necessary, for they will not keep in good condition from one day till the next. Some of the species literally grow up in a night and perish in a day. These also should be cooked with great promptness, for they are only desirable while young and before the gills have begun to change to a black inky liquid. Puff balls should only be used while the inner flesh is pure and white. When the yellowish stains of maturity begin to appear they are no longer fit for food. No one would think of eating them after the flesh has changed to the cottony dusty mass of maturity.

Many insects are fond of mushrooms. Both they and their larvæ feed on them and the latter often live in them. A mushroom may appear fair externally, but if it is cut or broken its flesh may be seen to be full of holes or galleries excavated by larvæ, and perhaps a colony of the larvæ themselves may be found within. It is needless to say that such specimens are unfit for food. Strange as it may seem, a colony of larvæ in the lower part of the stem of a mushroom will sometimes affect disastrously the flavor of the cap or upper part which they have not yet invaded. This fact may explain in part the varying opinions of different writers concerning the flavor and edible qualities of certain mushrooms. Slight differences in flavor may also be attributed to differences in the character of the soil in which they grow, the amount of moisture in the atmosphere, degree of temperature, age and rapidity of growth and to exposure to the sun and wind. Old and slowly-developed individuals are likely to be less tender than young and rapidly growing ones. Differences in individual tastes will also account in part for differences of opinion on this point. There are also peculiarities of constitution which have given origin to the saying, "What is one man's meat is another man's poison." One person can eat no egg, nor anything into which egg enters as an ingredient, without suffering or sickness. Another is made sick by eating strawberries, nevertheless egg and strawberries are not classed as poisonous. Still it is possible that some fungi as harmless as egg and strawberries may have been charged with poisonous qualities from some such accidental circumstance or individual peculiarity.

In collecting mushrooms for the table it is well, in all cases in which the stems are too tough for food, to cut the caps from the stems. In this way much dirt and useless material will be left where it belongs, and it will be possible in many cases to ascertain if the caps have been attacked by insects. Most often the larvæ mine their way up from the ground through the central part of the stem to the cap, and by cutting the cap from the stem their holes or galleries are exposed to view. In but few species are the stems sufficiently tender to be used. Some have recommended that the caps be placed in the collecting basket in an inverted position, for if placed in their natural position with gills downward they will drop their spores and their flavor will be impaired. It is very doubtful if this partial loss of spores affects the flavor in any appreciable degree. If more than one species should be taken during the same excursion it would be well to keep them separate from each other by wrapping each species in a piece of paper by itself. This precaution is not necessary if the species are so distinct in color, shape or size that they can readily be separated from each other at home, or if they are so similar in flavor and texture that they may be treated alike in cooking without any detriment to their esculent qualities.

Should a doubt arise at any time, concerning the identity of a supposed edible species, do not use such a mushroom until all doubt on this point has been banished. If it is thought desirable to compare the plant with the published figures and descriptions for the purpose of identifying the species, select for this purpose sound specimens which represent both the young and the mature forms, that all the specific characters may be shown. Take the specimens up carefully from their place of growth, removing all the loose dirt from the base of the stem. Wrap the specimens carefully in soft paper or large green leaves that they may be kept as fresh as possible till the time of examination. On reaching home, lose no time in making the examination for in some species there are evanescent characters which will not be available after a few hours' delay. In one family of fungi the color of the spores is an important character and a great aid in the identification of species. The color of the spores in many species is the same as or similar to the color of the mature gills, but there are so many exceptions that explicit directions for ascertaining their color will be given in another place.

In the preparation of mushrooms for cooking, the utmost cleanliness should be observed. Some have the upper surface of the cap covered with a sticky, viscid or glutinous substance when fresh. This often causes bits of dirt, leaves or sticks to adhere to the cap tenaciously. In such cases it is generally best to remove this rubbish by peeling the caps. In other cases the dirt may be wiped away with a damp cloth or towel, or washed off and then the surface dried with a towel. It is also well to peel those having a thick tough skin. In boleti, the stratum of pores on the lower surface of the cap is apt to form a mucilaginous or slimy disagreeable mass in cooking. It is, therefore, well to remove it before cooking. It is easily separable from the cap and can readily be removed by pressing it outwardly from the stem with a knife blade. In very large thick-fleshed specimens it is best to cut in slices or chop in small pieces.

The proper method of cooking will depend somewhat on the kind of mushroom, the tastes of those that are to eat them and the conveniences at hand. Many of them can be cooked in the same manner as a beefsteak. It is customary to cook them in a very simple manner, either by frying in butter or broiling gently with a little butter added and seasoning to taste. They may also be stewed or baked. The skillful cook will devise many ways of cooking them and various recipes will be found in cook books and in works on edible fungi. Too much cooking may spoil a mushroom as well as an oyster or a tender beefsteak. My efforts to make a tough mushroom tender by steaming have not been successful, but the experiments have not been numerous nor long continued. Species too tough to be eaten with pleasure or digested with comfort have sometimes been utilized by making of them a kind of soup or broth which could be eaten with relish and comfort. Sometimes mushrooms are used in small quantity to give flavor to meats or other dishes. Those of inferior flavor are sometimes made more agreeable by cooking with them a few specimens of some more highly flavored species. The same species may vary in flavor according to the method of cooking and the kind of seasoning used as well as by reason of the circumstances previously mentioned.

Mushrooms may be dried and kept for future use. The best method of drying them is to place them in a current of warm air. Dry them as quickly as possible without burning them, and keep the drying process in operation till completed. A common fruit evaporator would doubtless be a good instrument for drying them. The drying of thick and moist ones would be facilitated by cutting them in slices.

The general opinion is that mushrooms constitute a very nutritious and sustaining diet. Chemical analysis and personal experience indicate this. The former has shown that in their dry matter they contain from twenty to fifty per cent. of protein or nitrogenous material. They may, therefore, well be called a kind of vegetable meat and be used as a substitute for animal food. Like other vegetables, they are largely composed of water, which is from eighty to ninety per cent. of the whole. In consequence of this they shrink greatly in drying and lose much weight. The presence of so much nitrogenous material induces rapid decay and loathsome decomposition in them. It should also teach moderation in their use as food. A hearty meal on mushrooms alone would be about as reasonable as a dinner on nothing but beefsteak, and might be expected to be followed by similar ill consequences. Gormandizing is not commendable under any circumstances nor with any kind of food. But especially should it be avoided in mushroom eating, for the human system demands but small quantities of the nitrogenous elements which enter into its composition. An excessive amount is sure to be hurtful, but eaten in moderate quantity it is easily digestible, acceptable and beneficial. The digestive organs of the writer are not strong by nature and are easily affected by unfavorable treatment or indigestible substances, yet he has never experienced any discomfort from eating mushrooms. He has eaten them frequently, partaken of many different species, and experimented with a considerable number of species not classified as edible. The explanation is simple. They have always been eaten in moderate quantity. In my opinion, cases of sickness and digestive derangement that have been attributed to poisonous properties of mushrooms are sometimes really due to the excessive use of species that otherwise are perfectly harmless.

In some countries where edible fungi are commonly and extensively employed as food, even species which we regard as unwholesome are utilized. They are soaked in vinegar or in salt water for the purpose of destroying or rendering inert their noxious properties. They are then carefully washed and thrown into hot water for a short time, after which they are treated in the usual way. This practice is not recommended. Aside from the danger arising from the inefficiency of the treatment in some cases, it is very improbable that any mushrooms so treated would still retain a very agreeable flavor. There is, besides, no need of running any risks with doubtful or suspected species, for the number of those known to be good and safe is sufficiently great to satisfy all reasonable demands. Possibly the time may yet come when the noxious properties of poisonous mushrooms may be utilized with advantage in medicine, but such species should not be used as food. He who is too ignorant to recognize with confidence the species known to be good, would better abstain from such food entirely unless he can avail himself of the knowledge of some one who can recognize them.

A few edible fungi appear early in the season, but with us July, August and September are the months when the greatest variety is to be found. The morels occur in May and June. The Fairy-ring mushroom and the Glistening coprinus sometimes appear in June, and successive crops follow from time to time whenever the weather is favorable. During warm, showery weather in July and August most of our edible boleti are to be found.

A few of the species continue in September. The latter part of August and the first half of September will bring the Common mushroom and the Horse mushroom, the weather conditions being right. Excessively dry weather and prevailing cold weather are unfavorable to mushroom growth. Heat and moisture combined are favorable. It sometimes happens when the fields and open country are too dry for mushroom growth, a scanty supply may be found in deep woods and shady swamps. It would be useless to look in such places for the Common mushroom and the Fairy-ring mushroom, for they do not grow in woods; but the Delicious lactarius, the Involute paxillus, the Rough-stemmed boletus and the Chantarelle may be found there. The Oyster pleurotus and the Sapid pleurotus may be found in woods or clearings at any time between June and October, provided there is sufficient rain to induce growth, but the Honey-colored armillaria, the Imbricated tricholoma, the Masked tricholoma and the Elm pleurotus will rarely be found before the last week in August or the first of September. Let no one expect to find the Granulated boletus, the Yellowish-brown boletus or the Small Yellowish boletus except in the immediate vicinity of pine trees or in places where pine trees have grown. These hints may be something of a guide to the inexperienced mushroom hunter. The dates and habitat given under the description of each species will furnish more full and definite information on this subject.

Before proceeding to the description of species it may be well to explain certain technical terms it may be convenient or necessary to use. For illustration of some of the following terms see Plate A and its explanation.

The substance of a mushroom takes the name *flesh* though it is quite unlike animal flesh in texture and appearance. Most mushrooms have an expanded part called the *cap* botanically known as the *pileus*. This is generally supported on a stem, but in the absence of a stem the cap is *sessile*. It varies much in shape in different species and even in the same species in different stages of development. In some mushrooms thin vertical plates or membranes radiate from the stem to the margin of the cap, or in the absence of a stem, from the point of attachment of the cap to its free margin. These are called *lamellæ* or *gills*. Shorter ones intervene toward the margin of the cap to fill the spaces that would otherwise be left vacant. The gills are attached by their upper edge to the lower surface of the cap and often by their inner extremity to the stem. They are *adnate* when attached to the stem by the whole width of their inner extremity *adnexed*, when attached by a part of their width only, *decurrent*, when they run down on the stem, gradually tapering to a point, and *free* when not attached to the stem. Sometimes their lower edge is notched or excavated at or near the stem, which fact is designated by the words *emarginate* or *sinuate*.

In some, the lower surface of the cap is full of small holes or cells, called *pores*. These are so small in some species that they are scarcely noticeable but generally they are easily visible They stand like tubes in a vertical position, side by side, with the openings or mouths downward. Theoretically they may be supposed to be formed by numerous gills connected by frequent partitions or transverse membranes.

In still another group of mushrooms the lower surface of the cap has neither gills nor pores, but instead there are numerous spine-like or awl-shaped projecting points called *teeth*. It is very much as if closely placed gills had been deeply, regularly and finely notched or gashed, but the teeth are not arranged in regular radiating rows, as they would be if actually formed in this way.

The upper surface of the cap is *glabrous* when it is smooth or free from hairs, fibrils or scales; *even* when it has no pits, ridges or other inequalities; *silky* when adorned with soft, close-pressed fibrils; *fibrillose* if these fibrils are harsher and looser; *floccose* when they are soft, short and collected in little flocs or tufts; *tomentose* when crisped and interwoven so as to form a woolly surface; *squamose* or *scaly* when coarse and collected in tufts, also when the cuticle breaks or cracks into small flakes or spot-like patches. These same terms are also applicable under the same conditions to the surface of the stem. The cap is also said to be *umbonate* when it has a small projection or boss on its center; *umbilicate* if it has a small central cavity or umbilicus, and *hygrophanous* when it has a soaked or watery appearance, the loss of which by drying is accompanied by some change in color. The margin of the cap is *striate* when marked by nearly parallel radiating lines. If these lines are very slight or are visible only in the moist or hygrophanous state the fact is indicated by the term *striatulate*.

The stem is *equal* or *cylindrical* when it is of uniform diameter in all its length; *bulbous*, when more or less abruptly enlarged at its base; *stuffed*, when its interior or central part is of a softer or looser texture than the exterior. In some mushrooms a thin membrane, in others a mass of webby filaments, stretches from the stem to the margin of the cap and conceals the gills in the young plant, but as the cap expands, this membrane, called the *veil*, usually separates from the margin of the cap and adheres to the stem, forming around it a ring or *collar*, botanically known as an *annulus*.

In a few species the young plant is wholly enveloped in a membranous or somewhat tomentose *volva* or wrapper, but this is soon ruptured by the growing plant and its remains are in some cases entirely left at the base of the stem, in others they partly adhere to the upper surface of the cap in the form of *warts*, or more rarely and exceptionally in a few small irregular patches. The dangerously poisonous species occur in a genus in which the volva is a prominent character.

The *spores* are the seeds or reproductive bodies of mushrooms. They are as fine as dust and are invisible to the naked eye except when collected together in great numbers or in masses. The *hymenium* is the surface or part of the plant immediately concerned in the production of the spores, and the *hymenophore* or *hymenophorum* is the part that supports the hymenium. In the Common mushroom and many others as well, the spores develop on certain specialized cells called *basidia* (basidium in the singular) on each of which four spores usually develop. In the morels, these specialized cells are elongated into cylindrical membranous sacks called *asci* (ascus in the singular), in each of which eight spores usually develop. In germination the spores send out slender threads or filaments called *mycelium* by botanists, but commonly known as *spawn*. The mycelium permeates the soil or other substance on which the mushroom grows and under favorable circumstances develops a crop of mushrooms of its own species.

The method and place of spore development furnishes the basis for the primary classification of fungi. The best way to acquire a knowledge of our edible mushrooms is to study them in the light of the primary characters employed in botanical classification and, therefore, in their natural relations to each other. It is my plan to arrange and describe them in their respective classes, families and genera. It will be seen that the species here described are all included in three great groups or classes, whose names and distinguishing characters may be expressed in the following general manner:

Gasteromyceteæ. Fungi whose spores are produced in the interior of the plant. Example. *Puff balls.*

Discomyceteæ. Fungi whose spores are produced on the upper or exterior surface of the cap and are contained in delicate membranous sacks. Example. *Morels.*

Hymenomyceteæ. Fungi whose spores are produced on the lower surface of the cap. Example. *Common mushroom.*

In the last class there are a few species in which no cap is developed. In these the spores are produced on the exterior of upright simple stem-like plants, or of the branches of upright bush-like plants, or on the upper surface of jelly-like irregularly expanded plants. None of the gelatinous plants will be described and only a few species of the other exceptional cases. These species all belong to the single genus Clavaria.

The spore-bearing surface, or hymenium, is generally recognizable, even to the naked eye, by its smooth, delicate, waxy appearance, which is quite unlike that of the sterile surfaces.

In most of the cap bearing mushrooms the lower surface of the cap is furnished with special organs on whose surfaces the spores are produced. These are in the forms known as gills, pores and teeth, and these organs furnish the characters on which the three principal families of the Hymenomyceteæ are founded. These characters will be more fully discussed in their proper place.

Gasteromyceteæ.

Puff Balls.

Puff balls belong to the class of fungi to which botanists have given the name Gasteromyceteæ. This name may be translated *stomach fungi.* It has reference to the fact that those plants which belong to this class have their stomach, that is, their whole interior, filled with spores when mature. The spores are developed on basidia as in the Hymenomyceteæ.

These are among the most easily recognized of fungi and the larger species in their early state are among the best of our edible species. Almost every country lad is familiar with the globular plants with papery rind stuffed full of a mass of brown dust-like material intermingled with cottony filaments. Time and again these have been seen lying on the ground or adhering to old stumps or the dead trunks of trees, and often have they afforded amusement by being subjected to sudden pressure between thumb and fingers that there might be seen the little cloud of dust-like spores belched forth like a miniature puff of smoke, and like smoke quickly vanishing in the air. But no one would think these good to eat, nor indeed are they while in this condition. But most puff balls are white within when young and their substance is then of a soft fleshy texture very unlike the dusty mass that fills them in mature age. *And it is only while they are white within that they are fit for food.* When they reach maturity the flesh at first assumes greenish yellow or brownish-yellow hues and is apt to become moist or watery. They are then spoiled for edible purposes.

Lycoperdon *Tourn.*

Most of our puff balls and both the edible species here noticed belong to the genus *Lycoperdon.* There are about twenty species of this genus found in our State, but most of them are quite small, being less than two inches in diameter. They are naturally and botanically divided into two groups characterized by the manner in which they open for the dispersion of the spores. In one group the rind of the mature plant breaks into irregular fragments in the upper part of the plant, and gradually falls away exposing the mass of spores and permitting them to be disseminated by the wind. In the other group the rind opens by a small nearly circular but somewhat ragged apical aperture. This group includes nearly all of the smaller species, and the rind is generally thinner and more papery than in the others. Both the edible species here described belong to the first group. Some botanists have considered this group as worthy of generic distinction and have applied the name *Calvatia* to it, but for our present purpose the original names of the species are deemed preferable.

No deleterious species of puff ball is known, but so far as my experiments have gone the small species are inferior in flavor to the large ones, and these only are at present recommended for food. Possibly some of the untried small species may be as agreeably flavored as the large ones, and perhaps improved methods of cooking may give a more agreeable dish from those already tried. We have two species of *Bovista*, a kind of puff ball differing slightly from lycoperdons in the more perfectly globular shape and in the more tough and smooth rind of the mature plant. These are the Lead-colored bovista, *Bovista plumbea*, and the Ball shape bovista, *Bovista pila*, both of which are pronounced edible by Professor W. Trelease, but as I have not tried them they are dismissed from further consideration at present.

The genus *Scleroderma* is allied to our common puff balls and would naturally be classed with them in the popular mind. The species differ from puff balls in their thicker rind and in having a colored flesh even in the immature state. I suspect that their disagreeable flavor has kept them out of the list of edible species, but one correspondent affirms that he has eaten these fungi and considers them good.

The two species of puff ball now to be described may be contrasted as follows:

Plant 8 to 15 inches in diameter, spore mass olivaceous, L. giganteum.

Plant 3 to 6 inches in diameter, spores mass purplish . . . L. cyathiforme.

Lycoperdon giganteum *Batsch.*

GIANT PUFF BALL.

Plate 1.

Peridium very large, globose or depressed-globose, sessile or nearly so, glabrous or slightly flocculose, white, whitish or slightly yellowish, becoming dingy with age; capillitium and spores greenish-yellow, then dingy-olivaceous; spores globose, about .00016 in. broad.

The Giant puff ball is our largest species. Its diameter is commonly eight to fifteen inches, but sometimes it attains even larger dimensions. Its horizontal diameter is often greater than its altitude. Its rind is smooth and white or whitish, but as it grows old it becomes yellowish and dusky. The flesh is at first white but with maturity it assumes greenish-yellow hues and when it becomes dusty it is brownish or brownish-olivaceous.

It grows in grassy places and appears in August and September. It is not common, but owing to its large size a single one is sufficient for a meal for a large family. Indeed one writer advises that, when one is found growing near the house, it should not all be taken at once, but that a sufficient quantity of it should be taken for a meal and another portion be cut from it the next day for another meal, and so on until it is all utilized or until it is too old for use. The largest specimens are apt to be depressed so as to resemble in shape a round loaf of bread.

Lycoperdon cyathiforme *Bosc.*

CUP-SHAPED PUFF BALL.

Plate 2.

Peridium three to six inches in diameter, globose or depressed-globose, smooth or minutely floccose or scaly, whitish cinereous brown or pinkish-brown, often cracking into areas in the upper part, commonly with a short thick stem-like base; capillitium and spores purple-brown, these and the upper part of the peridium falling away and disappearing when old, leaving a cup-shaped base with a ragged margin; spores globose, rough, purple-brown, .0002 to .00025 in. broad.

The Cup-shaped puff ball is smaller than the Giant puff ball and more common. Ordinarily it is from three to six inches in diameter. It is at first white, whitish or brownish, but it is apt to become darker with age, assuming brown or pinkish-brown hues. The upper part often cracks into angular areas or patches, the chinks being paler than the surface. When fully mature the upper part of the rind breaks up into fragments which fall away revealing the dull purplish-brown mass of spores and filaments within. After these have disappeared there still remains a cup-shaped base which is suggestive of the name of this puff ball and which sometimes persists all winter. From such an effete specimen the species was first named and described.

This species grows in pastures, sometimes in cultivated ground. It appears in August and September. In preparing it and the preceding species for the table select immature specimens whose flesh is yet pure white. Peel them and cut the flesh into slices one-fourth to one-half an inch thick. These slices may be fried in butter and seasoned according to taste or they may first be dipped in beaten egg and then fried and seasoned. In this way they make a kind of mushroom fritters or omelet that is liked by almost every one. If preferred, the beaten egg may be thickened with bread crumbs or crushed cracker. Some who are very fond of the Common mushroom fry the plain slices in butter, adding a mushroom or two to increase the true mushroom flavor, or they stew them in milk or cream, adding mushrooms if convenient, as before.

Discomyceteæ.

Morels, Helvellas and Mitrula.

The Discomyceteæ or *disk fungi* are evidently so named because in many of the species the fertile or spore-bearing surface is flat like a disk. It includes also many cup-shaped fungi in which the fertile surface is concave like the inside of a saucer or cup. But in the group which contains the edible species here to be noticed the fertile surface is neither flat nor concave, but decidedly convex, conical, oval or even cylindrical or club shaped. In some species also it is very irregular or uneven. In all the species, however unlike they may be in other respects, there is this agreement, the upper or exterior surface is the spore-bearing surface and the spores are developed in thin membranous sacks, not on basidia within the plant as in the case of puff balls. In the morels and allied species the plant consists of a stem and cap as in an ordinary mushroom, but these are very unlike the stem and cap of a mushroom in general appearance. Our edible species are placed in four genera, whose prominent distinctive characters, so far as our species are concerned, may be ascertained from the following table:

Cap coarsely pitted over its whole surface	Morchella.
Cap convolutely lobed	Gyromitra.
Cap irregular or reflexed	Helvella.
Cap club shaped, often irregularly so	Mitrula.

Morchella *Dill.*

In the genus *Morchella*, to which the morels belong, the cap is supported on a hollow stem and its whole surface is very uneven by reason of a net-work of anastomosing or reticulated ridges and their intervening cavities. This gives the surface a pitted or honeycombed appearance. The ridges are blunt on the edge. The spore sacks are imbedded in the whole surface, both of pits and ridges, each sack usually containing eight spores, a fact which can only be ascertained for one's self by the aid of a microscope. In the mass, the spores are yellowish.

Six species have been found in our State. All are similar in color, and the specific distinctions are not very sharp. They are found chiefly in the size and shape of the cap. All are deemed edible and similar in texture and flavor, and therefore the separation of the species from each other is not of much practical importance if they are sought for food only. The prevailing color of the cap in young and growing plants is buff-yellow or ochraceous, but as the plants become old or begin to dry, darker hues are assumed. The stems are rather stout, white or whitish, or barely tinged with yellow, and scurfy or at least not perfectly smooth and polished. They are hollow and in plants in which the margin of the cap is attached to the stem the cap also is hollow, the cavity being continuous between cap and stem.

The species may be arranged in two groups, in one of which the margin of the cap is wholly attached to the stem, in the other it is free.

All the species occur early in the season. They may be sought in wet weather, in May and June. I have never found any of them later than June. Most of them seem to prefer to grow under or near pine and ash trees, though they are sometimes found under other trees.

There are two or three species of stink horn fungi, species of *Phallus*, which, when old, bear some resemblance to morels. They have a pitted cap supported on a stem, but the cap has an opening in the top and the stem is porous, and besides, these plants have such an intolerable odor that no one would think of eating them. It is not likely that any one would mistake them for morels.

In the annexed table the distinctive features of the species are indicated. All the species are so much alike that the usual botanical diagnosis will be omitted.

	Margin of the cap united to the stem	1
	Margin of the cap free from the stem	3
1	Cap rounded or oval	M. esculenta.
1	Cap oblong or cylindrical	M. deliciosa.
1	Cap conical or oblong-conical	2
2	Cap distinctly broader than the stem	M. conica.
2	Cap scarcely broader than the stem	M. angusticeps.
3	Cap free from the stem to the middle	M. semilibera.
3	Cap free from the stem to the top	M. bispora.

Morchella esculenta *Pers.*

Common Morel.

Plate 3. Figs. 1 to 3.

In the Common morel the cap is generally a little longer than broad. It is sometimes nearly globose and sometimes slightly narrowed toward the top. The pits or depressions in its surface are rather broader than in other species and more rounded, thereby giving the surface an appearance more like that of a honeycomb. The plant is commonly two to four inches high, with a stem a half inch or more thick.

It has long been known as an edible species, as its specific name implies.

Morchella conica *Pers.*

Conical Morel.

Plate 4. Figs. 1 to 4.

The Conical morel has the cap conical or oblong-conical, as its name indicates. The longitudinal ridges on its surface run more regularly from top to base than in the Common morel. They are connected by short transverse ridges which are so distant from each other or so incomplete that the resulting pits or depressions are generally longer than broad, and sometimes rather irregular. The color in the young plant is a beautiful buff-yellow or very pale ochraceous, but it becomes darker with age.

The plants are generally three to five inches high, with the cap one and a half to two inches thick in its broadest part, and distinctly broader than the stem.

This is similar to the Common morel in its esculent qualities and is generally admitted by writers to be an excellent food and of delicate flavor. It has been regarded by some as a mere variety of the preceding species. Both may be found growing on either sandy, gravelly or clayey soils.

Morchella angusticeps *Peck.*

NARROW CAP MOREL.

Plate 4. Figs. 5 to 9.

The Narrow cap morel differs from the Conical morel in its generally smaller size, more pointed cap and comparatively thicker stem. Generally the cap is scarcely thicker than the stem, even at its base, which is its broadest part. It is long and narrow and sometimes curved. In some specimens the stem is widest at the top and gradually tapers toward the base as shown in figure 5.

The plants are commonly two to three inches high, with the cap generally less than an inch broad in its widest part, but sometimes much larger specimens occur.

Morchella deliciosa *Fr.*

DELICIOUS MOREL.

Plate 3. Figs. 4 to 7.

The Delicious morel is easily known by the shape of its cap, which is cylindrical or nearly so. Sometimes it is slightly narrowed toward the top and occasionally curved, as in the preceding species, but its long narrow shape and blunt apex is quite strongly contrasted with that species. It is usually two or three times as long as it is broad, and generally it is longer than the stem. Specimens also occur in which the cap is slightly more narrow in the middle than it is above and below, and rarely it is slightly pointed at the apex. The pits on its surface are rather narrow and mostly longer than broad. The stem is often rather short.

The plant varies from one and a half to three inches high. It is a rare species in our State.

The name indicates that the illustrious Fries, who originally described the species, considered it an especially agreeable morel, and indeed he says it is more sapid than the Common morel. Roques sustains him in this opinion and Quelet speaks of it as very fine and fragrant.

In the four species already described the margin of the cap is united to or continuous with the top of the stem. In the two remaining species the margin of the cap is free from the stem, and consequently an open space intervenes between it and the stem.

Morchella semilibera *DC.*

HALF FREE MOREL.

Plate 3. Figs. 11 to 13.

The Half free morel has a conical cap, the lower half of which is free from the stem. It rarely exceeds an inch or an inch and a half in length, and is usually much shorter than its stem. The pits on its surface are longer than broad. Deformed specimens occur in which the cap is hemispherical and very blunt or obtuse at the apex; in others it is abruptly narrowed above and pointed.

The plants are two to four inches high. The species is rare with us.

Some writers claim that its flavor is less agreeable than that of the Common morel. The plants are so scarce that I have had no opportunity to test its edible qualities.

The species was described by Persoon under the name *Morchella hybrida*, a name having reference doubtless to the character of the cap, which, by being half free, partakes of the nature of the cap of an ordinary mushroom, while in other respects it retains the features of the true morels. This name is adopted in Sylloge Fungorum, but most English writers have employed the other.

Morchella bispora *Sor.*

TWO-SPORED MOREL.

Plate 3. Figs. 8 to 10.

The Two spored morel is very similar to the Half free morel in external appearance. It is distinguishable by its cap which is free from the stem almost or quite to the top. The stem of the European plant has been described as stuffed, but in our plants it is hollow, though possibly in very young plants it may be stuffed. The remarkable and very distinctive character which gives name to the species, can only be seen by the aid of a microscope. In this species there are only two spores in each ascus or sack and these are much larger than the spores of the other species. They are two or three times longer and sometimes slightly curved. The spores of the other species are eight in an ascus and are very much alike in size and shape, and do not furnish decided specific characters; but in this species their importance can not be overlooked. Their length is about .0024 inch, while in the others it is .0008 to .001 inch.

This is probably our rarest species. I am not aware that it has been found in but one locality in our State. A few years ago Mr. H. A. Warne detected it growing among fallen leaves in a ravine near Oneida. I have not tested its edible qualities, but would have no hesitation in eating it if opportunity should be afforded.

Some writers speak highly of the edible quality of the morels, others are less enthusiastic over them. My own limited experience leads to the conclusion that, as a rule, they are not very highly flavored, though much better than some species classed as edible. One correspondent says, "I do not think much of morels. If cooked like mushrooms they become tough." And here, perhaps, is one cause of dissatisfaction with them. They may be spoiled by bad cooking. Some mushrooms are made more tough by too severe cooking. It is better to let such kinds simmer slowly over a gentle fire. One receipt for cooking morels says, cut clean morels in halves, place in a stew pan with butter and set over a fire. When the butter is melted add a little lemon juice, salt and pepper. Then cook slowly for an hour, adding from time to time small quantities of beef gravy.

Cooke speaks of morels in general as about the safest and most delicious of edible fungi, and Cordier represents the Common morel as a delicate food and one that is in general demand in France. There is one thing in favor of morels. They are generally free from insects, and on this account their natural flavor is unimpaired, and there is no loss from infested specimens. Their flesh is rather brittle or fragile and more dry than that of some mushrooms, in consequence of which they are easily dried for future use.

Gyromitra *Fr.*

The genus *Gyromitra* differs from *Morchella* in the character of its cap. The surface of this is not pitted as in the morels, but it is nevertheless very uneven, some parts being prominent as if inflated, others depressed. These convexities and depressions are so irregular and lobed that they suggest a faint resemblance to the convolutions of the brain. In other respects, and especially in the spore characters, the relationship to the morels is clear. Three species, *Gyromitra esculenta*, *G. curtipes* and *G. sphærospora* belong to our State, but the first one only is common and known to be edible.

Gyromitra esculenta *Fr.*

EDIBLE HELVELLA. ESCULENT GYROMITRA.

Plate 5. Figs. 1 to 3.

Pileus rounded, lobed, irregular, gyrose-convolute, glabrous, bay red; stem stout, stuffed or hollow, whitish, often irregular; spores elliptical, binucleate, yellowish, .0008 to .0009 inch long.

The Edible helvella, formerly known as *Helvella esculenta*, is easily recognized by its chestnut red irregularly rounded and lobed cap with its brain-like convolutions. The margin of the cap is attached to the stem in two or three places. When cut through it is found to be hollow, whitish within and uneven, with a few prominent irregular ribs or ridges. The stem is whitish, slightly scurfy, and, when mature, hollow. In large specimens it sometimes appears as if formed by the union of two or more smaller ones.

The plant is two to four inches high and the cap commonly two to three inches broad. Specimens sometimes occur weighing a pound each. It is fond of sandy soil and is found in May and June. It grows chiefly in wet weather or in wet ravines or springy places in the vicinity of pine groves or pine trees.

Cordier says that this species has an agreeable taste and is highly esteemed. Also that it is sold in the German markets as a true morel. I have repeatedly eaten it without experiencing any evil consequences, but its flavor to me is not that of a first-class mushroom. But it was simply fried in butter and seasoned with salt. Perhaps with more elaborate preparation or with the addition of a little lemon juice or vinegar its flavor might be improved.

Care should be taken by those eating it to use it with moderation and not to cook very old or long-kept specimens. Sickness has been known to result from eating freely of specimens that had been kept twenty-four hours before being cooked. When old and beginning to dry, the cap is apt to assume a darker or brown color. Often the lower or unexposed surface of the cap is paler than that which is more exposed to wind and sun.

Helvella *L.*

In the genus *Helvella* the cap is neither pitted nor convolutely lobed, but it is, nevertheless, quite irregular and variously reflexed, revolute or contorted so that in no two individuals, even of the same species, does it appear exactly alike. The stem in some species is stout and conspicuously marked by longitudinal grooves or furrows and their intervening ribs or ridges. In some species these furrows are continuous, in others, some of them are interrupted or short. In one or two species the stems are slender and even. All the species are rather small and scarce. They grow chiefly in woods and do not appear as early in the season as the morels and the Edible helvella. Though all are deemed edible I have not found them in sufficient quantity to verify their edible qualities and will describe only one of them.

Helvella crispa *Fr.*

WHITE HELVELLA.

Plate 5. Figs. 4 to 7.

Pileus deflexed, lobed or variously contorted, white or whitish; stem equal or slightly swollen at the base, deeply and interruptedly grooved, white or whitish; spores elliptical, .0007 to .0009 inch long.

The White helvella is distinguished from all other helvellas by its white or whitish color and by its peculiar stem, which is strongly ribbed and deeply grooved, the grooves or furrows being interrupted and varying much in length. A transverse section of the stem shows that it contains several longitudinal cavities or hollows. The cap is scarcely alike in any two individuals. Often it is lobed or contorted in such a way as to form two or more projecting points.

The plant is two to four inches high and the stem from one-fourth to one-half an inch thick. It grows in woods in August and September, but is not often plentiful.

Most French authors say that it is excellent when young, and Cooke says that when fresh it has a pleasant nutty flavor and is an excellent substitute for morels. Badham also affirms that all helvellas are esculent and have a general resemblance, in flavor, to morels. I do not know of any deleterious fungus that could reasonably be mistaken for this or any other helvella.

Mitrula *Fr.*

The genus *Mitrula* has been made by Saccardo in Sylloge Fungorum to include species having a club-shaped cap. In consequence of this enlargement of the generic character we find *Geoglossum vitellinum* Bres. and a variety of it, or a closely allied species, *Geoglossum irregulare* Peck, placed with the mitrulas. This pretty little fungus might easily be referred to the genus *Clavaria*, but for the fact that its spores are contained in asci or sacks. Nor is it sharply separated from the genus *Geoglossum* except by its spore characters. The New York plant differs from the European in its more compressed and irregular cap, and in consequence it has been kept distinct as a variety, in Sylloge, and stands as

Mitrula vitellina *Sacc.* var. irregularis *Peck.*

IRREGULAR MITRULA.

Plate 5. Figs. 8 to 14.

Pileus clavate, often irregular or compressed and somewhat lobed, obtuse, glabrous, yellow, tapering below into the short, rather distinct, yellowish or whitish stem; spores narrowly elliptical, .0003 to .0004 inch long.

When the Irregular mitrula is well grown and symmetrical it closely resembles the typical European plant, but usually the clubs or caps are curved, twisted, compressed or lobed in such a way that it is difficult to find two plants just alike. The plants are usually only one or two inches high, so that they would scarcely be thought of any importance as an edible species. But sometimes it grows in considerable profusion in wet mossy places in woods, so that it would not be difficult to gather a pint of them in a short time. Its beautiful bright yellow color makes it a very attractive object. It is our largest species of *Mitrula* and occurs in autumn.

It was first reported as an edible species in the Forty-second Report. Its flesh is tender and its flavor delicate and agreeable.

This plant was first described in 1879 in the Thirty-second Report, under the name *Geoglossum irregulare.* In 1882 Bresadola published his *Geoglossum vitellinum*, from which our plant differs so slightly that it has been considered a mere variety ; and in consequence of the irregularity in the publication of the Thirty-second Report, no extra copies having been ordered, the later name has been given precedence.

Hymenomyceteæ.

MUSHROOMS, BOLETI AND FAIRY CLUBS.

The mushrooms hereafter to be described belong to the very large class of fungi known to botanists by the name Hymenomyceteæ, a word composed of two parts, signifying *membrane fungi*, and in its present use indicating that in these fungi the spores are produced on thin or membranous parts or surfaces. In the Common mushroom and in all others of similar structure, these spore-bearing membranes or surfaces are found on the lower or under side of the cap. They are commonly called gills, and have already been described. The spores are produced on both surfaces of the gills, and when mature they drop through the interspaces between the gills and fall to the earth below or are wafted away by currents of air. All fungi having a cap with gills beneath belong to the family Agaricineæ.

In the Edible boletus and other fungi of similar structure the lower surface of the cap is full of small holes or pores, previously described. The spores are developed on the inner surface of these pores, and when mature they are dropped or ejected into the open air below. All fungi having a cap with pores beneath constitute a family called Polyporeæ.

In the Spreading hydnum or Hedgehog mushroom the lower surface of the cap is furnished with closely-placed depending spine-like teeth. All fungi of similar structure are included in a family named Hydneæ, from the genus Hydnum, the principal genus in it. In one species the cap is replaced by spreading branches with teeth on their lower surface. Spreading or thinly-expanded plants with no stems which belong to this and the preceding family are not noticed, since there are no edible species among them.

In the Cornucopia mushroom the cap has neither gills, pores nor teeth on its lower surface, which is even or slightly and obscurely wrinkled. It, therefore, belongs to a fourth family which takes the name Thelephoreæ.

There is still another family with a few edible species in it. It is named Clavarieæ, from its principal genus Clavaria. In this genus the edible species occur. It is composed of two kinds of plants. In one kind there is a simple upright club-shaped stem-like growth with no well-marked cap or expanded part. In the other there is a branching bush-like growth. In both these the spores are produced on the exterior surface of the plants or of their branches. A synoptical view of the five families is given in the annexed table.

	Cap present......................................	1
	Cap wanting	Clavarieæ.
1	Cap with radiating gills beneath....................	Agaricineæ.
1	Cap with pores beneath	Polyporeæ.
1	Cap with spine-like or awl-shaped teeth beneath......	Hydneæ.
1	Cap with neither gills, pores nor teeth beneath.......	Thelephoreæ.

Agaricineæ.

AGARICS.

The family Agaricineæ probably includes more edible species than any other. Its members are sometimes called "agarics." More than 500 species of this family have been credited to our State flora. For the sake of convenience in the identification of such a great abundance of material, botanists have divided the family into smaller groups or sections depending on the color of the spores. We can do no better than to follow this arrangement in the study of the species. It is not a difficult matter to ascertain the color of the spores of an agaric. Generally they have nearly or quite the same color as the mature gills, but to this there are so many exceptions that to be exact we must see the spores themselves. Singly they are invisible to the naked eye, but when collected in a mass their color is plainly to be seen. If the cap of a mushroom is cut from its stem and placed in its natural position, gills downward, on any flat surface, say a piece of white paper as broad as itself, it will in a few hours drop enough spores on the paper to show their color, on removing the cap. If the spores are white, and we may infer that they are if the mature gills are white, white paper will not be so good for disclosing their color, as paper of some dark color. Black paper is sometimes used when it is suspected that the spores are white. Or the cap may be placed on a piece of glass and then the glass may be placed over a white or a colored background, according to circumstances.

Fresh, sound, fully-developed specimens should be selected to furnish the spores. If the cap is thin it is well to invert a goblet or similar vessel over it to prevent it from drying and to exclude currents of air.

Having ascertained the color of the spores the subjoined table will show in which section the species belongs.

Spores brown, purplish-brown or black	Melanosporæ.
Spores ochraceous, brownish-ochraceous or rusty-ochraceous	Ochrosporæ.
Spores rosy or pinkish	Rhodosporæ.
Spores white, whitish or pale yellow	Leucosporæ.

Melanosporæ.

By some botanists the brown and purplish-brown-spored species are grouped in one section, and the black-spored species in another; but both are united in one section in Sylloge Fungorum and this is sufficiently simple for our purpose. Our edible species of this section are included in two genera, *Agaricus* and *Coprinus*.

Agaricus *L.*

The genus *Agaricus* originally included nearly all the species that now compose the family Agaricineæ, but it has been divided and subdivided until now it includes only such brown spored species as have free gills and a stem with a collar.

There are several edible species in the genus, and, so far as I know, it contains no dangerous species. The edible species are closely related to each other, and in all here noticed the gills have a pink color in young or middle age, but become dark-brown or blackish-brown in mature age. There is no simpler way of expressing the distinctive specific features than by an analytical table. The species may be arranged in two groups, depending on their place of growth. This arrangement is not as exact and satisfactory as is desirable, but it brings together those species that are most closely related to each other.

	Plants growing in pastures, grassy or open places	1
	Plants growing in woods or groves	4
1	Stem stuffed or solid	2
1	Stem hollow	3
2	Gills at first pink, about as broad as the thickness of the cap	A. campester.
2	Gills at first white, breadth less than the thickness of the cap	A. Rodmani.
3	Collar radiately divided on its lower surface	A. arvensis.
3	Collar floccose on its lower surface	A. subrufescens.
4	Flesh quickly changing to dull red where wounded	A. hemorrhoidarius.
4	Flesh not changing to dull-red where wounded	5
5	Cap with numerous persistent brown scales	A. placomyces.
5	Cap without scales or with few evanescent ones	A. silvaticus.

Agaricus campester *L.*[*]

Common Mushroom. Edible Mushroom.

Plate 6.

Pileus silky or squamulose; lamellæ at first a delicate pink, becoming brown or blackish-brown with age; stem stuffed, glabrous, white or whitish; spores elliptical, .00025 to .0003 inch long.

The Common mushroom, sometimes called the Edible mushroom, as if it was the only edible species known, and also Meadow mushroom in common with A. arvensis, is perhaps more generally used and better known than any other. It is the one commonly cultivated and the one most often seen on the tables of the rich and of fashionable restaurants and public houses. It is so eagerly sought in some of our cities that it is difficult to find the wild ones near these towns, for they are gathered almost as soon as they appear, and the cultivated ones usually bring prices beyond the reach of the poor.

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[*] This name is usually written *Agaricus campestris*, but in Sylloge Fungorum the more classical and grammatical term here adopted is used.

In very young plants the cap is hemispherical or almost globose and the gills are concealed. Such plants of this and of the closely related Horse mushroom have received the name "button mushrooms," and are preserved in brine or other liquid and sold in the leading grocery stores. As the cap expands the veil separates from the margin revealing the delicate-tinted pinkish gills. When mature the cap is very broadly convex or nearly flat. It is generally a little silky with close-pressed fibrils, but these often vanish with age and the cap appears quite smooth. Its margin, especially in the younger plants, extends a little beyond the exterior extremity of the gills. The color of the cap is commonly white, but with age it may become a little tinged with dingy hues. The flesh is white, but sometimes exhibits a tendency to become slightly tinged with red when cut and exposed to the air. Its taste is mild and pleasant. The epidermis is separable from the cap.

The gills are closely placed, rounded at the inner extremity and not attached to the stem. The beautiful pink hue of their early state gradually becomes darker and finally changes to a smoky brown, which, in dried specimens, becomes almost or quite black. This peculiarity in the coloration of the gills is so unlike anything known in the dangerous species that it seems surprising that any such should ever be mistaken for this mushroom. A whole group of pink-spored species, some of which are suspected of being hurtful, have pinkish-colored gills, but they never assume dark-brown or blackish hues.

The stem is generally shorter than the horizontal diameter of the cap and about equal in thickness from top to base. The central portion is a little softer in texture than the external part. A collar encircles it in the upper part. Sometimes this is so thin and slight that scarcely any vestige of it remains in old plants.

The spores are sometimes described as purplish-brown but I have never been able to see any decided purple tint in them. They are not as dark as seal-brown but approach it.

This mushroom, like many other plants that have been long and extensively cultivated, has developed into several forms which exhibit quite well-marked distinctive features. One of these, called the Garden mushroom, Variety *hortensis*, is represented by figures 8 and 9. It is often found in cultivation and sold in the markets, but is rarely found growing in the fields. Its cap is of a brownish color and frequently adorned with darker spots or scales.

Variety *griseus* has a grayish shining silky cap. I have not yet found it in New York, but it grows in Virginia. It occurs in France and is figured by Richon and Rosé.

Variety *alba* has the cap and stem white. It is our most common form.

Cap two to four inches broad, stem one and a half to three inches long, one-third to two-thirds of an inch thick.

The Common mushroom grows in grassy places, in pastures, manured ground and mushroom beds, never in thick woods. It occurs mostly in August and September. In cultivation in a suitable place it may be had in midwinter. Owing to the attacks of insects it is better to raise mushrooms in winter than in summer, unless the insects can be effectually excluded from the beds and the apartments and the temperature properly regulated. The wild ones are thought by some to have a better flavor than the cultivated ones, but the latter are good enough for any one and sometimes command surprisingly high prices. Mushrooms of all kinds are more eagerly sought and more extensively used in Europe than in this country, but with the great influx of Europeans into this country, bringing with them a taste for this kind of food, and with the rapid increase in population making an increased demand for all kinds of food, it is probable that the demand for and the use of mushrooms will soon be as great here as in Europe. The chief difficulty in the matter is the lack of a sufficient general knowledge of the species or of the means of acquiring the knowledge necessary to make it safe to use them.

In the wild state the Common mushroom usually grows in groups or a single one in a place, but when cultivated they often form large tufts. A kind of out-door cultivation is sometimes employed in order to increase the abundance of mushrooms. Neglected places in fence corners, pastures or roadsides are dug up and manure incorporated in the soil if it is not already very rich. Mushroom spawn, after having been soaked in warm water or kept moist in a warm place for several hours to start it into growth, is then planted in the prepared places and a coat of fine manure spread over the surface.

It is well to mulch the surface with some coarse material like leaves, straw or hay, to keep the soil moist. If the planting is done in spring and the season is favorable a crop of mushrooms should appear in autumn.

Almost every cook claims to know how to prepare this mushroom for the table, and recipes for cooking it will be found in cook books. No extended directions therefore are necessary here. One of the simplest methods and one which is applicable to all tender species is to fry gently in butter, seasoning according to taste. They may be stewed in milk or cream, broiled on a gridiron or in a steak broiler, or baked in an oven. To some they are very acceptable when eaten raw. Doctor Cooke says that when abroad on a day's excursion, one or two of these raw specimens are an excellent substitute for sandwiches, as they satisfy hunger, are nutritive and digestible, and very pleasant and grateful to the palate.

Agaricus Rodmani *Peck.*

Rodman's Mushroom.

Plate 9. Figs. 1 to 6.

Pileus rather thick, firm, glabrous, white or whitish, dingy-yellow or reddish-yellow in the center, flesh white, unchangeable; lamellæ crowded, narrow, at first whitish, then pink, finally blackish-brown; stem short, solid, whitish; spores broadly elliptical, .0002 to .00025 inch long.

Rodman's mushroom may easily be mistaken for the common mushroom to which it is closely related. It has been separated from it because of its comparatively thicker firmer flesh, its more narrow gills, which are almost white when very young, and its peculiar collar. This seems to be double, and in the mature plant the two parts separate in such a way as to leave a deep groove or channel between them. In very short-stemmed specimens the collar is situated so near the base of the stem that it appears much like the remains of the volva or wrapper in some species of Amanita. The spores are a little shorter and broader in proportion to their length than those of the Common mushroom, so that at first sight they seem to be nearly globose.

The cap is two to four inches broad, the stem one to two inches long and one-half an inch or less in thickness.

This mushroom was first described and recorded as edible in the Thirty-sixth Report. Subsequently Richon and Rosé published a species found in France to which they gave the name *Psalliota duriuscula*, the Firm champignon. They speak of their plant as a suspected species with nothing to recommend it, with an unpleasant flavor and with a flesh so hard as to render it indigestible. The figure and description of their species indicate that it is not distinct from Rodman's mushroom. But Mr. Rodman ate of his plant and found it perfectly harmless. It is, therefore, classed as edible. I have had no opportunity to test its edible qualities, but would have no hesitation in eating it if I could find it in good condition.

It grows in grassy ground and even in crevices of unused pavements and paved gutters in cities. It appears from May to July. I have not found it in autumn. It is rare.

Agaricus subrufescens *Peck.*

SLIGHTLY REDDISH MUSHROOM.

Plate 7.

Pileus at first deeply hemispherical, becoming convex or broadly expanded, silky fibrillose and minutely or obscurely squamulose, whitish, grayish or dull reddish-brown, usually smooth and darker on the disk, flesh white, unchangeable; lamellæ at first white or whitish, then pinkish, finally blackish-brown; stem rather long, often somewhat thickened or bulbous at the base, at first stuffed, then hollow, white; the annulus flocculose or floccose-squamose on the lower surface; mycelium whitish, forming slender branching root like strings; spores elliptical, .00024 to .00028 inch long.

The Slightly reddish mushroom differs especially from the Common mushroom in the peculiar deeply hemispherical shape of the cap of the young plant, in the white or whitish color of the very young gills, in the at length hollow stem, often somewhat thickened or bulbous at the base, and in the collar, which has the exterior or lower surface covered with little downy flakes or scales. Beside these characters it has others which may aid in supporting its claim to specific distinction. Its mycelium seems strongly disposed to form strings which adhere to the base of the stem like white branching thread-like roots, and the flesh has a flavor like that of almonds. This flavor appears to me to be more pronounced in the older plants than in those that are very young. When raised in large quantities in greenhouses it sometimes gives out a perceptible odor of bruised almonds.

The reddish-brown color is due to the coating of fibrils that cover the cap. These are often collected in minute tufts, which give a slight floccose or scaly appearance to the cap. In the center the epidermis does not separate into fibrils and scales, and in consequence the disk or center of the cap is smoother and more distinctly reddish-brown than the rest. The flesh is white and unchangeable when cut or broken. In this respect it differs decidedly from the Reddish variety of the Common mushroom, Variety *rufescens*, though it resembles it in having the very young gills white.

The stem is generally rather long and more or less thickened at the base. It is white and usually slightly flocculose below the collar, very smooth above it. In the mature plant it is hollow, but the cavity is very small. One of the distinguishing features of the species is the flocculent or scaly lower surface of the veil or collar. It is apparently a double membrane, as in the Field mushroom, but instead of the lower membrane breaking in a radiate manner as in that species, it breaks into small floccose flakes or scales. By this character and by the color of the very young gills it may be separated from the Garden variety of the Common mushroom, Variety *hortensis*, which it approaches in the color of the cap.

The plant often grows in large clusters of many individuals, one correspondent affirming that as many as forty individuals sometimes occur in one cluster. In size it is similar to the Common mushroom, but under favorable circumstances it seems sometimes to excel it, the cap attaining a diameter of six inches.

It has been found but once in a wild state within our limits. Mr. Wm. Falconer, of Glen Cove, Long Island, discovered it growing on his compost heap composed chiefly of decaying leaves. From some of these specimens kindly sent me by the discoverer the original description was derived, but the specimens were not in satisfactory condition to figure. The present illustrations have been made from specimens kindly furnished by Colonel Wright Rives of Washington, in whose greenhouse an enormous volunteer crop developed in soil prepared for forcing cucumbers. The species is apparently more easy of cultivation than the Common mushroom, less subject to the attacks of insects and not so intolerant of unfavorable conditions. It is very productive, develops sooner after the planting of the spawn and probably will keep longer in good condition. Specimens picked in Washington on Monday night, reached Albany in a good state of preservation on the Thursday following, and some of them were eaten for supper on that day, making an interval of three days and three nights between the picking and the eating, and proving the possibility of supplying a distant market with this mushroom. Its flesh does not seem to me quite as tender as that of the Common mushroom, and its almond-like flavor may not be as acceptable to some tastes, but it is nevertheless an excellent mushroom and one which may yet supersede the old kind, especially in the hands of private individuals who are often disappointed in their efforts to raise mushrooms

Agaricus arvensis *Schæff.*

FIELD MUSHROOM. HORSE MUSHROOM.

Plate 8.

Pileus smooth or at first slightly flocculent, white or yellowish; lamellæ at first whitish or very faintly pinkish, soon dull pink, then blackish-brown; stem stout, hollow, somewhat thickened or bulbous at the base, white, the collar double, the upper part membranous, white, the lower part thicker, subtomentose, radiately split, yellowish; spores elliptical, .0003 to .0004 inch long.

The Field mushroom or Horse mushroom, also called Meadow mushroom, is so much like the Common mushroom that some botanists have supposed it to be a mere variety of that species. The most notable differences are its larger size, its hollow, somewhat bulbous stem, its peculiar veil or collar and the paler gills of the very young plant. The cap in dried specimens is apt to assume a yellow color, which does not pertain to the Common mushroom. The collar appears to be composed of two parts closely applied to each other and making a double membrane, the lower part of which is of a thicker, softer texture and split in a stellate manner into broad yellowish rays. This is perhaps the most distinctive character of the species, and a more detailed description is scarcely necessary. No serious harm could come, so far as utility is concerned, if it should be confused with the Common mushroom.

It grows in cultivated fields, grassy pastures and waste places. It is occasionally found under trees and even within the borders of thin woods. It has been supposed by some that its spores will not germinate unless they have passed through the alimentary canal of some animal. Whether there is any truth or not in such a supposition, it is common enough to find this mushroom growing in places where no trace of the dung of animals can be seen. It appears from July to September.

A similar mushroom occurs in open places in woods or along the borders of thin woods. The color of its cap and stem is white as in the Field mushroom. Its cap is perhaps a little thinner and more fragile, and its stem is usually longer and has a very abrupt or flattened bulb at its base. Its collar is usually the same as that of the Field mushroom, but plants sometimes occur in which it appears to be a single lacerated membrane. Such plants have been referred to the Wood inhabiting mushroom, *Agaricus silvicola;* but its general affinities seem to me to connect it more closely with *Agaricus arvensis*, to which I would subjoin it as an abrupt variety, Variety *abruptus*, the name having reference to the character of the bulb. I have eaten of this variety and consider it edible. Dried specimens assume a yellowish hue.

Opinions differ concerning the esculent qualities of the Field mushroom. According to Berkeley it is inferior to the Common mushroom, and Badham says its flavor and odor are strong, and it is generally shunned by English epicures. On the other hand, Persoon says it is superior to the Common mushroom in smell, taste and digestibility, and it is, therefore, generally preferred in France. Vittadini also says it is very delicate and easy of digestion, but has a stronger odor than the Common mushroom. "Very sapid and very nutritious," "odor feeble, but flavor anise-like and very agreeable," "delicious when young and fresh, but tough when old," are opinions expressed by various writers. One author says it is edible and of exquisite flavor, and both these expressions have been perpetuated in two of the synonyms of the species, *Agaricus edulis* Kromh. and *Agaricus exquisitus* Vitt.

Agaricus placomyces *Peck.*

FLAT CAP MUSHROOM.

Plate 9. Figs. 7 to 12.

Pileus thin, at first convex, becoming flat with age, whitish, brown in the center and elsewhere adorned with minute brown scales; lamellæ close, white, then pinkish, finally blackish-brown; stem smooth, annulate, stuffed or hollow, bulbous, white or whitish, the bulb often stained with yellow; spores elliptical, .0002 to .00025 in. long.

The Flat cap mushroom is a rare but a beautiful species. Its cap is convex or somewhat bell-shaped when young, but when mature it is nearly or quite flat. Its brown center and its numerous minute brown scales on a whitish background give it a very ornamental appearance. It becomes darker with age.

Its gills, which in the very young plant are white or nearly so, pass through the usual shades of pink and brown with advancing age.

The stem is rather long and swollen into a bulb at the base. It sometimes tapers slightly toward the top near which it bears a thin flabby membranous collar. It may be either stuffed with a pith or hollow. It is white or whitish, but the bulb is sometimes stained with yellow.

Cap two to four inches broad, stem three to five inches long, one-fourth to nearly one-half an inch thick.

It grows in the borders of hemlock woods or under hemlock trees from July to September. It has been eaten by Mr. C. L. Shear, who pronounces it very good. I have not found it in sufficient quantity to give it a trial. This mushroom is very closely related to the Wood mushroom or Silvan mushroom, *Agaricus silvaticus*, a species which is also recorded as edible, but which is apparently more rare in our State than even the Flat cap mushroom. This differs from the Silvan mushroom in its paler color, in having the cap more minutely, persistently and regularly scaly, and in its being destitute of a prominent center. In the Silvan mushroom the scales, when present, are few, and they disappear with age.

Having had no opportunity to make the drawings of the Bleeding mushroom, *Agaricus hemorrhoidarius,* and of the Silvan mushroom, *Agaricus silvaticus*, and not having tested their edible qualities, they are, for the present, dismissed from further consideration.

Coprinus *Pers.*

The genus *Coprinus* is easily distinguished from all others by the character of the gills of the mature plant. These assume a black color and slowly dissolve into an inky fluid which, in the larger plants at least, falls to the ground in drops. The thin caps of some species also partly or wholly waste away in this manner. Because of the production of this black fluid, which has sometimes been used as a poor substitute for ink, these plants have received the name "inky fungi." In a few species the spores are brown, but generally they are black. Some of the plants literally grow up in a night and perish in a day. Many of the species inhabit dung or manure heaps, as the generic name implies. Most of them are so small, thin and perishable that they are not valuable as food. Even the larger ones have thin caps, and those deemed edible should be gathered when young and cooked promptly if used as food. Three species are here noticed.

Cap whitish	C. comatus.
Cap grayish or grayish-brown..................	C. atramentarius.
Cap buff-yellow or tawny-yellow	C. micaceus.

Coprinus comatus *Fr.*

SHAGGY COPRINUS.

Plate 10.

Pileus at first oblong or nearly cylindrical, becoming campanulate or expanded and splitting on the margin, adorned with scattered yellowish scales, whitish; lamellæ crowded, white, then tinged with red or pink, finally black and dripping an inky fluid; stem rather long, hollow, smooth or slightly fibrillose, white or whitish, at first with a slight movable annulus; spores elliptical, black, .0005 to .0007 in. long.

The Shaggy coprinus, or Maned agaric as it is sometimes called, is one of the largest and finest species of the genus. When young the cap is quite long and narrow, but with advancing age the margin spreads outward, becomes split in several places and curves upward. The surface is adorned with loose fibrils and with scales or spots which appear to be due to the breaking up of an epidermis which remains entire in a small patch on the very top of the cap. Except the top and the scales the cap is white, but in mature plants it often becomes sordid or blackish toward the thin margin as if it were stained or soaked by the inky fluid formed from the gills.

The gills at first are closely crowded together and white, but soon pinkish, reddish or purplish tints appear, which quickly change to black. Sometimes all these hues may be seen at one time in one plant.

The stem is white, smooth and hollow. In the young plant it is furnished with a collar which is movable or but slightly adherent. It is easily destroyed and has often disappeared at maturity.

The cap is one and a half to three inches long before expansion. The stem is three to five inches long and one-fourth to one-third of an inch thick. It grows in rich loose earth by roadsides, in pastures, waste places or dumping grounds. It appears in autumn and may sometimes be found quite late in the season. It is quite fragile and must be handled with care. It is very tender and digestible and scarcely inferior to the Common mushroom in flavor, though some think it is improved in flavor by cooking a mushroom or two with it. It is fit for the table only before the gills have assumed their black color, but even after that it is sometimes used in making catsup.

"When young it is very sapid and delicate;" "cooked quickly in butter with pepper and salt, it is excellent;" "edible, tender and delicious;" "in flavor it much resembles the Common mushroom, to which it is quite equal, if not superior; it is clearly more digestible and less likely to disagree with persons of delicate constitutions," are opinions recorded in its favor.

Coprinus atramentarius *Fr.*

INKY COPRINUS.

Plate 11. Figs. 7 to 11.

Pileus at first ovate, becoming expanded, glabrous or with a few obscure, spot-like scales in the center, grayish-brown; lamellæ crowded, at first whitish and flocculose on the edge, then black; stem glabrous, hollow, white or whitish; spores elliptical, black, .0003 to .0004 in. long.

The Inky coprinus is much less attractive in its appearance than the Shaggy coprinus. Its cap is quite smooth except on the disk, which is sometimes spotted with a few obscure scales. The color is grayish or grayish-brown, sometimes with a slight suggestion of lead color. The margin is sometimes irregularly notched or lobed.

The gills are at first crowded and whitish, but they soon become black and moist and gradually dissolve away, forming an inky dripping fluid which is suggestive of the name of the species, and which may be used as ink.

The stem is rather slender, smooth and hollow. It sometimes has a slight vestige of a collar near the base, but it soon disappears.

The cap varies from one to three inches or more in diameter, the stem is two to four inches long, one-sixth to one-third of an inch thick.

It grows in clusters in rich soil, in gardens, waste places or in woods, and appears in late summer or in autumn. The form growing in woods is generally smaller and more beautiful than that growing in open places. It may be called var. *silvestris*.

The cap sometimes appears as if suffused with a bloom. It deliquesces rapidly and it is, therefore, more available for catsup than for food. If intended for the table it must be cooked as soon as brought to the house. In Europe both this and the preceding species appear in spring as well as in summer and autumn, but I have not seen them early in the season in our State.

Coprinus micaceus *Fr.*

GLISTENING COPRINUS.

Plate 11. Figs. 1 to 6.

Pileus thin, at first ovate, then campanulate or expanded, striate, sometimes glistening with shining particles when young, buff-yellow or tawny-yellow; lamellæ crowded, whitish, then tinged with pinkish or purplish-brown, finally black; stem slender, fragile, hollow, white; spores elliptical, brown, .00025 to .0003 in. long.

The Glistening coprinus is a small but common and beautiful species. Its cap is somewhat bell-shaped and marked with impressed lines or striations from the margin to or beyond the middle The center is smooth and often a little more highly colored than the rest. The glistening particles which are suggestive of the name of this little mushroom are not often noticeable, and when present on the young cap they often disappear with age. The margin is frequently notched or lobed and wavy and it is apt to become split as the cap expands. The color varies from a pale whitish-buff to tawny-yellow or reddish-ochraceous. It becomes sordid or brownish in old age, especially if wet or water-soaked.

The gills, as in the preceding species, are at first crowded and whitish, but they soon change color, becoming pinkish tinted and then brown and black.

The stem is slender, fragile, smooth, hollow and white. The brown color of the spores is unusual in this genus.

Cap one to two inches broad, stem one to three inches long, rarely thicker than a pipe stem.

The Glistening coprinus grows in clusters on the ground or on decaying wood. It occurs from May to November. It appears in wet weather and sometimes seems to anticipate rain, starting to grow two or three days before a rain storm. Several successive crops often come up about a single old stump in one season. When a cluster appears to grow from the ground it is quite probable that it really starts from some decaying root or other piece of wood buried in the earth. It is not uncommon to find it growing from places in the margin of the sidewalks of our cities where shade trees have been cut down, the decaying stump and roots furnishing the necessary habitat. In such cases the boys of the street delight in kicking the clusters to pieces and stamping them out of existence, thinking probably that they are abundantly justified in destroying a vile toadstool which might otherwise be the means of poisoning some one. These tufts are sometimes very large and composed of very many plants closely crowded together. Sometimes the caps crack into small areas, the white flesh showing itself in the chinks.

European writers do not record the Glistening coprinus among the edible species, perhaps because of its small size. But it compensates for its lack of size by its frequency and abundance, and it has the advantage of being easily and frequently procurable. In tenderness and delicacy it does not appear to me to be at all inferior to the Shaggy coprinus, and it certainly is harmless, for it has been eaten repeatedly by various persons and always without ill results. It was published as edible in the Twenty seventh Report.

Ochrosporæ.

Members of this section may be known by the ochraceous hues of their spores. The color may vary somewhat, being ochraceous, rusty-ochraceous or brownish-ochraceous in different species. The recorded edible species occur in three genera, Pholiota, Cortinarius and Paxillus. No species of the first genus has been proved by me.

Cortinarius *Fr.*

Of the genus *Cortinarius*, eight species have been classed as edible by English writers. Four of these occur in our State, and three of them have been tried. The genus contains many species, and it is almost certain that several others will yet be found to be esculent. The genus is distinguished especially by the rusty-ochraceous color of the spores and by the webby character of the veil. In the young plant fine webby filaments stretch from the margin of the cap to the stem, and in many species these are so numerous that they at first conceal the gills, but they mostly disappear with advancing age and leave little or no trace of a collar on the stem. In some instances a few filaments adhere to the stem and afford a lodgment for the falling spores, in consequence of which a rusty-brown stain or ill defined band of color is seen on the upper part of the stem.

In young plants the color of the gills is generally quite unlike that of mature ones. In these the gills become dusted by the spores and assume their color, so that there is great uniformity in the color of the gills of mature plants in all the species. It is, therefore, of the utmost importance in identifying species of *Cortinarius* to know the color of the gills of the young plant. In all the species they are attached to the stem at their inner extremity, and generally they are emarginate Most of the species grow in woods or groves or along their borders, and are especially found in late summer and autumn in hilly or mountainous regions.

The three species here described may be tabulated as follows:

	Stem not bulbous	1
	Stem with a bulbous base	C. violaceus.
1	Cap viscid or glutinous when moist	C. collinitus.
1	Cap not viscid, dry and fibrillose	C. cinnamomeus.

Cortinarius violaceus *Fr.*

VIOLET CORTINARIUS.

Plate 12.

Pileus convex, becoming nearly plane, dry, adorned with numerous persistent hairy tufts or scales, dark violet; lamellæ rather thick, distant, rounded or deeply notched at the inner extremity, colored like the pileus in the young plant, brownish-cinnamon in the mature plant; stem solid, fibrillose, bulbous, colored like the pileus; spores subelliptical, .0005 in. long.

The Violet cortinarius is a very beautiful mushroom and one easy of recognition. At first the whole plant is uniformly colored, but with age the gills assume a dingy ochraceous or brownish-cinnamon hue. The cap is generally well formed and regular and is beautifully adorned with little hairy scales or tufts. These are rarely shown in figures of the European plant, but they are quite noticeable in the American plant and should not be overlooked. The flesh is more or less tinged with violet.

The gills when young are colored like the cap. They are rather broad, notched at the inner extremity and narrowed toward the margin of the cap. When mature they become dusted with the spores whose color they take.

The stem also is colored like the cap. It is swollen into a bulb at the base and sometimes a faint rusty-ochraceous band may be seen near the top. This is due to the falling spores which lodge on the webby filaments of the veil remaining attached to the stem.

Cap two to four inches broad, stem three to five inches long, about half an inch thick.

The Violet cortinarius grows among fallen leaves in the woods of our hilly and mountainous districts, in July and August. I have never found it in the open country. It is solitary or scattered in its growth and not very plentiful. Nevertheless it is a very good species to eat, and when botanizing in the extensive forests of the Adirondack region it afforded an excellent and very much relished addition to our bill of fare. It retains something of its color when cooked, and in consequence a dish of Violet mushrooms is scarcely as attractive to the eyes as to the palate.

Cortinarius collinitus *Fr.*

SMEARED CORTINARIUS.

Plate 13. Figs. 1 to 6.

Pileus convex, obtuse, glabrous, glutinous when moist, shining when dry; lamellæ rather broad, dingy-white or grayish when young; stem cylindrical, solid, viscid or glutinous when moist, transversely cracking when dry, whitish or paler than the pileus; spores subelliptical, .0005 to .0006 in. long.

The Smeared cortinarius is much more common than the Violet cortinarius and has a much wider range. Both the cap and stem are covered with a viscid substance or gluten which makes it unpleasant to handle. The cap varies in color from yellow to golden or tawny-yellow and when the gluten on it has dried it is very smooth and shining. The flesh is white or whitish. The young gills have a peculiar bluish-white or dingy-white color which might be called grayish or clay color, but when mature they assume the color of the spores. They are sometimes minutely uneven on the edge.

The stem is straight, solid, cylindrical and usually paler than the cap. When the gluten on it dries it cracks transversely, giving to the stem a peculiar scaly appearance.

The cap is one and a half to three inches broad, and the stem two to four inches long and one-fourth to one-half inch thick.

The plant grows in thin woods, copses and partly-cleared lands and may be found from August to September.

It is well to peel the caps before cooking, since the gluten causes dirt and rubbish to adhere tenaciously to them.

Cortinarius cinnamomeus *Fr.*

CINNAMON CORTINARIUS.

Plate 13. Figs. 7 to 20.

Pileus thin, convex, obtuse or umbonate, dry, fibrillose at least when young, flesh yellowish; lamellæ thin, close, adnate; stem slender, equal, stuffed or hollow; spores elliptical, .0003 in. long.

The Cinnamon cortinarius is smaller than either of the foregoing species, but it is more abundant. It is quite variable in size, shape and color. The cap is generally convex at first, but often expands until it is nearly flat. Sometimes it has a central prominence or umbo. It is more or less coated, at least when young, with minute silky fibrils, but sometimes becomes smoothish with age. Its color is commonly cinnamon-brown, brownish-ochraceous or tawny-brown. The gills are some shade of yellow when young, except in one variety, but when mature they assume the color of the spores. The stem is rather slender, often flexuous, fibrillose or silky, stuffed or hollow when old, and yellowish or colored like the cap, or a little paler.

In the Half-red variety, Variety *semisanguineus*, figures 15 to 20, the young gills have a dark blood-red color. This perhaps ought to be considered a distinct species.

The cap is usually one to two inches broad, the stem one to three inches long and one-fourth of an inch thick or less. The plant grows in woods or their borders, under trees or in mossy swamps. Like many flowering plants which have a wide range and are not particular as to their habitat, this mushroom is perplexing because of its variability, but it is believed that the description and figures here given will make it recognizable. The fresh plant often has a slight odor like that of radishes.

Paxillus *Fr.*

The genus *Paxillus* is characterized by its gills which are easily and smoothly separable from the cap just as the tubes of a Boletus are, from the cap that supports them. They are reticulately connected at the base in the single species here considered. The spores are ochraceous.

Paxillus involutus *Fr.*

INVOLUTE PAXILLUS.

Plate 28. Figs. 18 to 23.

Pileus compact, convex at first, soon expanded and centrally depressed, nearly glabrous, grayish-buff or ochraceous-brown or yellowish ferruginous, the margin involute and when young covered with a grayish tomentum ; lamellæ close, decurrent, branched and reticulately connected behind, whitish, then yellowish or subferruginous, changing to reddish-brown where cut or bruised ;

stem central or eccentric, solid, glabrous, colored like the pileus: spores elliptical, .0003 to .0004 in. long.

The Involute paxillus is somewhat variable in color and exhibits a strange admixture of gray, ochraceous, ferruginous and brown hues, sometimes one being more prominent, sometimes another. It is apt to be viscid when moist and shining when dry. The margin is rolled inwards in the young plant, and is adorned with a grayish tomentum or villosity. It sometimes exhibits short markings as in figures 20 and 21. The flesh is not a clear white, but tinged with gray.

The gills are at first whitish, but they become yellowish or rust colored with advancing age and assume brownish or reddish brown stains where cut or bruised. They are decurrent and a little wavy and reticulately connected where they run down on the stem. The interspaces between them are marked with veins.

The stem is generally shorter than the diameter of the cap and solid. It is colored nearly like the cap and is sometimes adorned with a few darker spots.

Cap two to four inches broad, stem one to three inches long, one-third to one-half an inch thick.

The Involute paxillus grows in woods either on the ground or on decayed wood. It grows singly or in groups and seems to like damp mossy soil well filled with vegetable matter. It is common in cool hemlock or spruce woods, but occurs also in mixed woods, and along the borders of marshes. When growing on old decayed stumps or the prostrate moss-covered trunks of trees the stem is sometimes eccentric, but in other cases it is generally central. It appears from August to November.

It is sometimes called the Brown chantarelle, but it is scarcely a rival of the true chantarelle. Most authors record it as edible but they do not praise it highly. Richon and Rozé say it is edible but scarcely to be recommended. Letellier on the other hand says it can be employed as food with much advantage. It is also said to be held in high estimation in Russia. With us it is scarcely available except to people living near damp woods or swamps.

Rhodosporæ.

The name of this section, which in some works bears the name Hyporhodii, indicates that the spores are red, but their color is really a peculiar pinkish or rosy hue commonly described as flesh color or salmon color. It is a combination of ochraceous and pink. The mature gills usually have this color. Only a few species of this section are known to be edible and some have been thought to be unwholesome. There are several genera, but the species here considered belong to one only.

Clitopilus *Fr.*

The species of this genus are separable from all others of the section by their fleshy stem and decurrent gills. Mushrooms of similar structure occur in the genus Clitocybe which belongs to the section characterized by white spores. Their gills also are generally white in the mature plant. The pink-gilled species need not be confused with the Common mushroom and those of its relatives that have the gills of a pink color while young, for in them the pink color is soon replaced by brown or blackish-brown, but in these the gills retain their pinkish hue and never assume darker colors. Besides, in the Common mushroom and its allies the gills are not attached to the stem by their inner extremity, but in the species of this genus they are. Many species, not of this genus only but also of other genera in this section, have the gills white or whitish in the young plant, but with advancing age they assume the more permanent pinkish hue.

Clitopilus prunulus *Scop.*

PLUM CLITOPILUS.

Plate 14. Figs. 1 to 6.

Pileus fleshy, compact, broadly convex or nearly plane, sometimes centrally depressed, dry, suffused with a bloom, whitish or grayish, the margin sometimes wavy; lamellæ somewhat distant, decurrent, at first whitish, becoming salmon colored; stem glabrous, solid, white; spores oblong elliptical, pointed at each end, .0004 to .00045 in. long.

The Plum clitopilus is not a common species with us, and when it does occur it is not in abundance. Its cap is white or whitish inclining to grayish with the center sometimes decidedly darker than the margin. It is dry and firm and often seems to be covered with a bloom. Its flesh is white and the plant has an odor like that of meal.

The gills are at first nearly white but they assume a pale-pink or salmon color with age. They run down on the stem.

The stem is solid, smooth and white.

Cap two to three inches broad, stem one to two inches long, one-fourth to one-half an inch thick. This plant is found in woods in warm wet weather in July and August. It is solitary or there are but few individuals in a place. English writers speak highly of it as an esculent, and class it among the most delicious of edible species. Gillet says that it is one of the best mushrooms that can be found.

Clitopilus orcella *Bull.*

Sweetbread Mushroom.

Plate 14. Figs. 7 to 11.

Pileus fleshy, soft, broadly convex or nearly plane, generally irregular and wavy on the margin, silky, white or yellowish-white; lamellæ close, decurrent; stem short, solid, flocculose, sometimes eccentric; spores oblong-elliptical, pointed at each end, .00035 to .0004 in. long.

The Sweetbread mushroom is so much like the Plum mushroom that it is not surprising that they have been regarded as forms of one species. The differences indicated in the descriptions would make the Sweetbread mushroom generally a little smaller and less regular, the flesh softer, the cap slightly viscid in wet weather and a clearer white, and the gills a little closer together. Intermediate forms seem to connect the two supposed species, and however interesting the differences may be to botanists, the mushroom eater will scarcely try to keep the two forms separate. Both have the farinaceous odor and are not very different in taste. Some have considered the Sweetbread mushroom as slightly superior in the delicacy of its flavor. Both are good enough. The Sweetbread mushroom sometimes grows in pastures and open places. Miss Banning sometimes finds it growing in rings after the manner of the Fairy-ring mushroom. She finds some plants with the usual strong new meal odor, others with but little odor and all with a flavor suggestive of cucumbers.

Leucosporæ.

The Leucosporæ or white-spored agarics are distributed among many genera. The species are more numerous than in any other section and many of them are edible. On the other hand, our most dangerous species occur in this section. The spores are generally white, as the name of the section indicates, but in a few cases they have a dingy or sordid-white hue, and in several species they are pale-yellow. In one or two species not found within the limits of our State they have a green color, but these are not yet recorded as edible species. In one mushroom the spores assume a pale-lilac tint after a brief exposure to the air and light. Pale-yellow spores occur especially in the genera Cantharellus, Lactarius and Russula.

Our edible species are found in about a dozen genera. The subjoined analytical table will serve to indicate the leading characters of each genus and may be used as a guide or an aid in tracing any species to its proper genus.

	Plant with a membranous sheath at the base of the stem or with superficial warts on the cap........	1
	Plant destitute of such sheath and warts	2
1	Stem furnished with a collar	Amanita.
1	Stem destitute of a collar	Amanitopsis.
2	Gills narrow, obtuse on the edge...............	Cantharellus.
2	Gills acute on the edge	3
3	Gills somewhat waxy in texture	Hygrophorus.
3	Gills not waxy in texture	4
4	Cap eccentrically or laterally attached to the stem or stemless	Pleurotus.
4	Cap centrally attached to the stem..............	5
5	Gills free from the stem	Lepiota.
5	Gills attached to the stem.........................	6
6	Stem furnished with a collar	Armillaria.
6	Stem destitute of a collar	7
7	Stem brittle......................................	8
7	Stem not brittle	9
8	Gills exuding a white or colored juice where wounded	Lactarius.
8	Gills exuding no juice where wounded...........	Russula.
9	Dry plant reviving on the application of moisture...	Marasmius.
9	Plant putrescent, not reviving on the application of moisture	10
10	Edge of the gills notched or excavated at the stem	Tricholoma.
10	Edge of the gills even............................	Clitocybe.

Amanita *Pers.*

In the genus *Amanita* the very young plant is enveloped in a membrane or a tomentose wrapper which is ruptured by the growth of the plant. In some species the remains of the ruptured wrapper persist about the base of the stem, forming a kind of cup or sheath; in others, a part of the wrapper is carried up on the surface of the cap and adheres to it in small irregular patches or in the shape of numerous small warts or prominences which are easily separable from it. It sometimes happens that these superficial warts are washed off by heavy rains. The cap in most of the species is regular and broadly convex or nearly flat when mature, and in some instances it is slightly sticky or viscid when moist. The gills are free from the stem and the stem is furnished with a membranous collar. These plants are generally large and attractive in appearance. Inasmuch as our most dangerous species belong to this genus it is very important that the specific characters of the edible ones should be thoroughly understood by those who would use them for food. Mistakes here are attended with too much risk to be lightly made. Some would counsel the rejection of all species of Amanita because of the presence in it of some poisonous ones; but it would be as reasonable to say we will eat no parsnips because the poison hemlock belongs to the same family, or no potatoes, tomatoes or egg plant because the deadly night shade is closely related. The only thing necessary is the ability to separate the good from the bad in one case just as we do in the other.

Amanita cæsarea *Scop.*

ORANGE AMANITA.

Plate 15.

Pileus glabrous, striate on the margin, red or orange, fading to yellow on the margin; lamellæ yellow; stem annulate; loosely sheathed at the base by the ruptured membranous white volva, yellow; spores elliptical, white, .0003 to .0004 in. long.

The Orange amanita is a large, attractive and beautiful species. When very young the cap and stem are contained in a white membranous envelope or wrapper not very much unlike a hen's egg in size, shape and color. As the parts within develop, the wrapper ruptures in its upper part, the stem elongates and carries upward the cap, while the remains of the wrapper surround the base of the stem like an open sack or loose sheath. The cap is at first red or orange, but with advancing age it fades to yellow on the margin. Sometimes the whole cap becomes yellow. In dried specimens the red color often wholly disappears. The margin, even in the young plant, is marked by distinct impressed parallel radiating lines or striations. The flesh is white but more or less stained with yellow under the separable epidermis and next the line of attachment of the lamellæ or gills. Its taste is mild and pleasant. As in most of our other species of Amanita, the cap, when fully expanded, is nearly flat above, and when moist its surface is slightly sticky or viscid.

The gills are rounded at the extremity next the stem and are free, that is, not attached or grown fast to the stem. They are yellow, and in this respect are unlike the gills of nearly all the other edible species of mushrooms here described. Generally the color of the gills in the mature plant resembles the color of the spores of that plant, but in this species we have an exception.

The stem and the flabby membranous collar that surrounds it toward the top are yellow like the gills, though sometimes they are stained in places by darker or saffron-colored hues. The stem of the young plant contains in its center a soft cottony substance or pith, but with advancing age this disappears and the stem is hollow. This character generally holds good in all the species of Amanita here described. In the very young plant the outer edge of the collar is attached to the margin of the cap and thereby it covers and conceals the gills, but with the elongation of the stem and the expansion of the cap, the collar separates from the margin and remains attached to the stem only.

The expanded cap is usually three to six inches broad, the stem four to six inches long and a half inch or more in thickness. Sometimes these dimensions are exceeded.

The plant grows chiefly during rainy weather or just after heavy rains, in July, August and September. It is found in thin woods and seems to be especially fond of pine woods and a sandy soil. It is not common. It sometimes grows in rings or in the arc of a circle.

This fungus has been held in high estimation as an article of food from very ancient times. It was used by the Greeks and Romans and having graced the table of a Roman emperor it received the name "Cæsar's mushroom," whence the botanical name. One ancient writer terms it "Cibus Deorum," the food of the gods. Imperial mushroom, Orange mushroom, true Orange, Yellow-egg and Kaiserling are other names applied to it.

All authors who have written concerning its esculent qualities agree in characterizing it as "delicious." Cordier says that it is an exception to the general rule that young plants are better for food than those fully grown. The inference is that the mature individuals are just as tender and sapid as the young ones. I have not tested this point. No charge or even suspicion of noxious quality seems to have been entertained against it in any case.

There is but one harmful species with which it is possible to confuse the Orange amanita. It is the Fly amanita, *Amanita muscaria.* These two resemble each other in size, shape and color of the cap, but in other respects they are quite distinct. The chief distinctive characters may be contrasted as follows:

Orange amanita. Cap *smooth*, gills *yellow*, stem *yellow*, wrapper *persistently membranous*, white.

Fly amanita. Cap *warty*, gills *white*, stem *white* or slightly yellowish, wrapper *soon broken into fragments or scales*, white or yellowish.

In Europe there is said to be a variety of the Orange amanita with the cap wholly white or whitish, but no such variety has yet been recorded in this country.

Amanita rubescens *Fr.*

REDDISH AMANITA.

Plate 16.

Pileus warty, even or but slightly striate on the margin, more or less tinged with dingy-red or brownish red hues; lamellae white or whitish; stem annulate, bulbous at the base, whitish, but generally with dull reddish stains, especially toward the base; spores elliptical, .0003 to .00035 in. long.

The Reddish amanita has a peculiarly sordid and uninviting appearance, owing to the dingy character of its colors. The wrapper which covers the young plant soon breaks up into small fragments, those on the cap being carried up with it in the growth of the plant and generally remaining on it in the form of small wart-like protuberances. The part remaining behind at the base of the stem is so fragile and fleeting that nearly all traces of it soon disappear, and were it not for the warts on the cap and the free lamellæ the plant would scarcely be suspected of being an Amanita. The warts on the cap are easily removable and are sometimes washed off by rain, leaving the cap entirely smooth. The margin of the cap is generally even, but sometimes, especially in fully matured individuals, it is more or less striated While the color is peculiarly dull and sordid it varies considerably. The cap may be whitish tinged with pink or red, brownish-red or dingy grayish-red. Sometimes it is not uniformly colored but has the margin paler than the center, or there may be darker stains in some places. The flesh is white or slightly tinged with red. Sometimes wounds of the flesh, gills or stem slowly assume a dull reddish color, but this is not a constant character.

The stem has a membranous collar near the top and a bulb at its base. In some cases this bulb is quite abrupt, in others it is pointed below and gradually narrowed into the stem above. The surface of the stem may be smooth in some plants, but generally it is more or less adorned below the collar with minute scales or mealy or branny particles. It is commonly of a whitish or dingy-white color, more or less stained with dull-red, especially toward and at the base. The center of the stem is of a looser, softer texture than the rest, and in mature plants it sometimes becomes hollow.

Cap three to five inches broad, stem three to six inches long, and generally about half an inch thick.

It grows either in woods or in open places, and may be found from July to September.

The Reddish amanita, as found in New York, is generally of a paler color than that indicated by most of the published figures of the species. Frequently the cap is almost white, with but a slight reddish or brownish-red tint. The strong distinguishing character of the species is the almost entire absence of any remains of the wrapper at the base of the stem. By this and by the presence of the dull-red hues and stains it may be distinguished from any of our poisonous species.

Some writers have referred to this species as of doubtful quality, suspected character or as poisonous, but later authors agree in classing it with the edible species. According to Cordier it is largely used in the eastern part of France, and is one of the most delicate mushrooms. Gillet agrees with him in this opinion. Cooke says it is pleasant both in taste and smell, and is a very common, safe and useful species. Stevenson records it as delicious and perfectly wholesome.

Amanitopsis *Roze.*

The principal feature wherein the genus *Amanitopsis* differs from Amanita is in the absence of a collar from the stem. Its species were formerly included in Amanita. We have one edible species.

Amanitopsis vaginata *Roze.*

SHEATHED AMANITOPSIS.

Plate 17.

Pileus rather thin, fragile, glabrous or adorned when young with one or more adhering fragments of the volva, deeply and distinctly striated on the margin; lamellæ free, white or whitish; stem destitute of an annulus, sheathed at the base by the torn remains of the rather long, thin, flabby volva; spores globose, white, .0003 to .0004 in. broad.

The Sheathed amanitopsis is distinguished from any species of Amanita by the absence of a collar from the stem.

In this plant the cap is quite smooth except in rare instances in which one or two fragments of the ruptured wrapper adhere to it for a time. The striations on the margin are deep and distinct, as in the Orange amanita. The cap is quite regular, but it is fragile and easily broken. In some instances a slight blunt protuberance or umbo develops at its center. It varies considerably in color, and several varieties depending on this variation have been described.

The flesh is white, but in the darker-colored forms it is grayish under the separable epidermis.

The gills are white or whitish and are gradually more narrow toward the stem. The stem is often smooth but generally it is sprinkled with minute mealy or branny particles or floccose scales, especially in young and vigorous specimens and in the dark-colored forms. It is either hollow or stuffed with a cottony pith. It is not bulbous, but it is sheathed at the base with a soft, flabby, torn membrane, the remains of the wrapper. This adheres so slightly to the stem that if the plant is carelessly pulled the sheath is left in the ground.

The cap is two to four inches broad; the stem, three to five inches long and one fourth to one-half an inch thick.

The plant grows singly or scattered in woods or in open places. It is common in the deep damp vegetable mold of dense evergreen woods in mountainous regions, but is not limited to such localities. It is found in almost all parts of the State and on a great variety of soil. It sometimes grows on much decayed wood. It occurs from June to October.

In the white variety, Variety *alba*, the whole plant is white. This is *A. nivalis* (Grev.) and *A. fungites* (Batsch.).

In Variety *fulva*, *A. fulva* (Schæff) figures 1 to 4, the tawny variety, the cap is tawny-yellow or pale ochraceous.

In the livid variety, Variety *livida*, the cap has a livid or leaden-brown color and the gills and stem are more or less tinged with a smoky-brown hue. This is *A. livida* and *A. spadicea* (Pers.). See figures 5 to 9.

Some of the older authors placed the sheathed mushroom among the doubtful or suspected species, but more recent writers generally admit that it is edible. My own experience indicates that it is scarcely first class, though some pronounce it "delicate," "delicious," etc.

Lepiota *Fr.*

The species of *Lepiota* have the gills typically free from the stem, as in Amanita and Amanitopsis, but they differ in having no superficial or removable warts on the cap, and no sheathing or scaly remains of a wrapper at the base of the stem. In some species the epidermis of the cap breaks into scales which persistently adhere to the cap, and this feature, indeed, suggests the name of the genus, which is derived from the Latin word *lepis*, a scale.

Our State is favored with at least two very good edible species, both of which are easily recognized, if the generic characters are kept in mind.

Cap scaly, umbonate.............................. L. procera.
Cap smooth, not umbonate........................ L. naucinoides.

Lepiota procera *Scop.*

PARASOL MUSHROOM. TALL LEPIOTA.

Plate 18.

Pileus thin, umbonate, adorned with brown spot-like scales; lamellæ white or yellowish-white, free, remote from the stem; stem very long, annulate, hollow, bulbous; spores large, elliptical, .0005 to .0007 inch long.

The Parasol mushroom is a very neat, graceful and attractive species. When young the cap is brownish or reddish-brown and somewhat resembles an egg in shape. Its reddish-brown epidermis soon breaks up into numerous fragments, and as the cap expands these become more and more separated from each other, except on and near the central boss or umbo. As the cap is paler beneath the epidermis it appears, when expanded, to be variegated by brown spots or scales. The paler surface has a somewhat silky or fibrillose appearance, minute fibrils radiating from the center toward the circumference. The cap sometimes becomes fully expanded, but usually it maintains a convex form like an opened umbrella or parasol. This form, together with the prominent umbo and the long slender stem, is very suggestive of the common name of this fungus. The flesh is soft, dry, slightly tough and white. It has no unpleasant odor or flavor.

The gills are whitish or slightly tinged with yellow. They are closely placed side by side, narrower toward the stem than toward the margin, and their inner extremity is so far from the stem that a conspicuous clear space is left about it.

The stem is very long in proportion to its thickness and is, therefore, suggestive of the specific name *procera*. It has a rather thick, firm collar, which in the mature plant generally becomes loosened and movable on it like a ring. At the base it swells out and forms a bulb. Generally the part below the collar is variegated by numerous small brownish dots or scales, but these are by no means a constant character. The stem is hollow or it sometimes contains a soft cottony or webby pith.

Cap three to five inches broad, stem five to ten inches long, one-fourth to one-half an inch thick.

This plant grows in thin woods, in fields and pastures and by roadsides. It usually grows singly or scattered, but sometimes in clusters. It may be found from July to September, but, unfortunately, it is not very common with us.

The Parasol mushroom has been highly commended and is evidently a first class edible species. "One of the most delicate species, although the flesh is slightly tough," "almost the greatest, if not the greatest, favorite with fungus eaters," "very delicate, of easy digestion and in great demand," are some of the recorded utterances in its favor.

There is no poisonous species with which it can be confused or for which it can be mistaken. The very tall slender stem with its bulbous base, the peculiarly spotted cap with its very prominent darker colored umbo, and the broad space or basin about the insertion of the stem and between it and the inner extremity of the gills, easily distinguish this mushroom.

There is a form in which the umbo and spot-like scales are paler than usual, and the whole plant, except these, is white. I regard it as a mere variety of the species. A form without an umbo and with a somewhat shaggy appearance to the cap has been found in the western part of the State. It closely resembles the Ragged lepiota, *Lepiota rhacodes*, a species which is also edible. Our plant, however, differs from the description of *L. rhacodes* in having larger spores; these being scarcely smaller than those of the Parasol mushroom. It is the opinion of some botanists that *L. procera* and *L. rhacodes* are forms of one species, so closely are they related, and in Massee's Fungus Flora the latter is considered a mere variety of the former.

Lepiota naucinoides *Pk.*

SMOOTH LEPIOTA.

Plate 19.

Pileus soft, smooth, white or smoky-white; lamellæ free, white, slowly changing with age to a dirty pinkish-brown or smoky-brown color; stem annulate, slightly thickened at the base, colored like the pileus; spores subelliptical, uninucleate, white, .0003 to .0004 in. long.

The Smooth lepiota is generally very regular and symmetrical in shape and of a pure white color. Rarely the central part of the cap is slightly tinged with yellow or with a smoky-white hue, which is occasionally dark enough to be called smoky-brown. Its surface is nearly always very smooth and even. In rare instances a slight mealiness or granular roughness develops on the central part of the cap. A very unusual form sometimes occurs in which the surface of the cap is broken into rather large thick scales which give it a singular appearance. To this form the name Variety *squamosa* has been applied.

The gills are a little narrower toward the stem than they are in the middle. At the inner extremity they are rounded and not attached to the stem. They are white or slightly tinged with yellow until maturity or old age when they acquire a slight pinkish-brown or even a smoky-brownish color. In dried specimens this last color prevails.

The stem has about the same color as the cap. It has a white collar of which the external edge is generally thicker than the inner. It sometimes breaks loose from its attachment to the stem and becomes a movable ring upon it as in the Parasol mushroom. Occasionally in old specimens it becomes torn and disappears entirely. Nearly always the stem gradually enlarges toward the base and forms a more or less distinct bulb. It is hollow, but as in most of the preceding species, the cavity often contains webby or cottony filaments, especially in the immature plants.

Cap two to four inches broad, stem two to three inches long, one-fourth to one-half an inch thick.

The Smooth lepiota grows in grassy places in lawns and pastures or by roadsides. Rarely it is found in cultivated fields, and even in thin woods. It may be found from August to November.

In my estimation this species is scarcely, if at all, inferior in its edible qualities to the Common mushroom. Its flesh is thick and white and usually tender and savory. It is very free from the attacks of insects and growing, as it often does, in places where the grass is short and dense, it has a neat, clean and attractive appearance. Its gills retain their white color a long time, and in this respect it has an advantage over the Common mushroom.

in which they soon pass from the delicate pink of youth to the repulsive blackish hue of age. One of my correspondents in speaking of this species says "it grows abundantly here and is one of our finest edible mushrooms. I have taught our people to eat it and it is now highly prized in this region."

It being similar to the Common mushroom in size and color it is sometimes confused with that species. But a glance at the color of the gills is sufficient to separate the two. The color of the spores and the character of the stem and collar are also distinguishing differences. It still more closely resembles the Chalky mushroom, *Agaricus cretaceus*, but the darker color of the gills and the brown color of the spores of that species will also abundantly distinguish it. Our plant is apparently the American representative of the European *Lepiota naucina*, to which it was formerly referred, and from which it scarcely differs except in the shape of its spores and in its smoother cap. The spores are described by Fries as globose in the European plant. All the species here mentioned are edible, so that discrimination between them would not be necessary for safety in using any of them for food. It is, however, more satisfactory always to recognize without any doubt the species used for food. Our figures and descriptions will enable any one to do so. The Smooth lepiota was first recorded as edible in the Twenty-seventh Report, where it stands under the name *Agaricus naucinus*.

Armillaria *Fr.*

The species of *Armillaria* differ from all the foregoing white spored species in having the gills attached to the stem by their inner extremity. Like them their spores are white and the stem has a collar, but there is no wrapper at the base of the stem as in Amanita and Amanitopsis. By the collar the genus differs from the other genera which follow.

Armillaria mellea *Vahl.*

HONEY-COLORED ARMILLARIA.

Plate 20.

Pileus adorned with minute tufts of brown or blackish hairs, sometimes glabrous, even or when old slightly striate on the margin; lamellæ adnate or slightly decurrent, white or whitish, becoming sordid with age and sometimes variegated with reddish-brown spots; stem annulate, at length brownish toward the base; spores elliptical, white, .0003 to .0004 in. long.

The Honey-colored armillaria is very plentiful and extremely variable. The cap is generally adorned with numerous minute tufts or scales of brown or blackish hairs, which are often more dense on the disk or center than toward the margin. In young plants they are often so crowded on the disk as to cover it and give it a darker hue than the margin has, and they sometimes are so fine and matted that they have a kind of woolly or tomentose appearance. In some forms of the species they are entirely wanting, or they disappear with age. The cap is sometimes charged with moisture, and as this evaporates the color becomes slightly paler. Its color varies from almost white to a dark reddish-brown, which is shown in figure 4. The most common hue is a brownish-yellow shown in the lower figures of the plate. The margin of the cap in mature plants is commonly striated, but forms are not rare in which no striations appear. The center of the cap is sometimes prominent, as in figure 3. The flesh is white or whitish and its taste is somewhat unpleasant or acrid.

The gills are at first white or whitish, but with age they become less clear in color and are often more or less stained or spotted with reddish-brown. The inner extremity of those that reach the stem is attached to it and usually runs down slightly upon it. Sometimes there is a slight notch on the lower edge of the gills near the stem.

The stem is adorned with a collar which may be membranous or of a thick cottony texture, or so thin and webby that it entirely disappears in the older plants. Externally the stem is rather firm and fibrous, but centrally it is soft and spongy or even hollow. It varies considerably in color, but usually it assumes a reddish-brown or livid-brown hue, especially toward the base, remaining paler above. Sometimes a yellowish green tomentum is noticeable at the base of the stem, and occasionally on the collar. The stem may be of uniform thickness or slightly thickened at the base or even narrowed almost to a point here. In one variety it has a distinctly bulbous base, in another a tapering base like a tap root which penetrates the earth deeply.

Cap one to six inches broad, stem one to six inches long, one-fourth to three-fourths of an inch thick.

The Honey-colored armillaria is very common and grows either in woods or in cleared land, on the ground or on decaying wood. A favorite habitat is about stumps and prostrate trunks in recently cleared places or in bushy pastures. Its mode of growth is either solitary, gregarious or in dense tufts or clusters. Tufts a foot in diameter and composed of twenty or more plants are not uncommon. The plants are especially abundant in hilly and mountainous districts in autumn. They rarely appear plentifully before the first of September, though occasional specimens have been seen as early as June.

Monstrous forms sometimes occur, and there is an abortive form which consists of a whitish irregular rounded mass of cellular matter without any distinction of stem cap or gills. This usually grows in company with the ordinary form, and is an inch or two in diameter. The mycelium of this fungus is thought to be destructive to the wood in which it grows. Probably most of the plants which appear to grow on the ground really take their rise from mycelium which permeates some fragment of wood or some root buried in the ground. It attacks both the hard woods and soft woods.

Authors disagree concerning its edible qualities. Some of the older authors considered it poisonous, but modern writers generally agree that it is harmless and edible, but of inferior quality. Cordier says it is edible and loses its acridity in cooking, but the stems are tough and not used.

Richon and Rozé affirm that its taste is astringent and that its acridity does not entirely disappear in cooking, but that it is edible though of indifferent quality.

According to Vittadini, it is preserved in vinegar, salt and oil for use in winter, and its acridity is lost in cooking. Gillet also says that in reality it is harmless, though it has an acrid, disagreeable taste, which disappears in cooking. "Esculent but not commendable," is the verdict of Berkeley; "edible but tough," says Stevenson, while Cooke tells us that it is very common and much used on the Continent, but is not recommended.

My own experience in eating it at various times, both fried and stewed, has always been without any harm. Cooking has appeared to me to dispel the unpleasant taste of the raw plant. but sometimes when the dish was prepared by stewing in milk and water, a slight, unpleasant burning sensation was felt in the throat a short time after eating. I consider it a perfectly safe and edible species, but not of first quality. Only the caps of young and fresh specimens should be used.

It is not improbable that such a variable plant as this may vary somewhat in flavor. We do not expect all varieties of apples to have exactly the same flavor, though the species may be one. The degree of toughness, too, may vary according to the age and the rapidity of the growth of the plants. Individual tastes may also differ, so that what would please one might be distasteful to another. Such facts may account, in part, at least, for the varying opinions concerning the edible qualities of this very common mushroom. The essential thing to know is, that the species is not dangerous. Then those who like it may eat it.

The following varieties of this species may be noted:

Variety *obscura* has the cap covered with numerous small blackish scales.

Variety *flava* has the cap yellow or reddish-yellow, but in other respects it is like the type.

Variety *glabra* has the cap smooth; otherwise like the type.

Variety *radicata* has a tapering, root-like prolongation of the stem, which penetrates the earth deeply.

Variety *bulbosa* has a distinctly bulbous base to the stem.

Variety *exannulata* has the cap smooth and even on the margin, and the stem tapering at the base. The annulus is very slight and evanescent or wholly wanting. The cap is usually about an inch broad, or a little more, and the plants grow in clusters, which sometimes contain forty or fifty individuals. It is more common farther south than it is in our State, and is reported to be the most common form in Maryland.

Notwithstanding the variability of the species, it is easily recognized when its characters are once known. I do not know of any dangerous species which could easily be mistaken for it.

The abortive form which often grows with it, is not distinguishable from the abortive form of *Clitopilus abortivus*. It has a farinaceous taste which is lost in cooking. It is not inferior to the normal form in flavor, and may be eaten with safety.

Tricholoma *Fr.*

The species of *Tricholoma*, and all the white-spored, gill-bearing fungi to be hereafter described in these pages, differ from all the preceding species in having no collar on the stem. In this genus the gills are attached to the stem, and are excavated or notched on the edge at or near the stem. It often happens that this notch is so near the extremity of the gill that the part attached to the stem is more narrow than the gill just beyond the excavation and causes the gill to appear as if rounded at the inner extremity. This is an important character, though not a very conspicuous one. The stem is fleshy and generally short and stout. Three species have been tried and approved, and are here described. Others reported as edible belong to our flora and await further trial.

Cap viscid when moist	T. transmutans.
Cap not viscid, reddish-brown.......	T. imbricatum.
Cap not viscid, reddish-violaceous	T. personatum.

Tricholoma transmutans *Peck.*

Changing Tricholoma.

Plate 21. Figs. 1 to 5.

Pileus viscid when moist, tawny-red, becoming reddish-brown with age; lamellæ whitish or pale-yellowish, becoming dingy or reddish-spotted when old; stem whitish, generally becoming reddish-brown toward the base, stuffed or hollow, spores white, subglobose, .0002 in. broad.

The Changing tricholoma has the cap moist and sticky when young and fresh, or during wet cloudy weather. Its color at first is tawny or tawny-red, but with advancing age it generally becomes darker, assuming a cinnamon-red or reddish-brown hue, but sometimes retaining a paler hue on the margin than in the center. The flesh is white and emits a mealy or farinaceous odor, especially when cut. The taste also is farinaceous.

The gills are placed closely side by side and are notched at the inner extremity where they are attached to the stem. At first they are whitish or slightly tinged with yellow, but when old they are much darker and more or less spotted with reddish-brown.

The stem is about as long as the diameter of the cap. It is generally paler than the cap, being whitish when young, but assuming darker hues with age, especially toward the base. It is often stuffed with a softer substance or pith when young, but it soon becomes hollow.

Cap two to four inches broad, stem two to four inches long, about half an inch thick.

It grows in thin woods or open places in wet weather. It may be found from August to October. It is often found growing in tufts or clusters, but it is usually gregarious. It seems to prefer a sandy or light gravelly soil. It sometimes grows in company with the next species in groves of young spruce, balsam fir and tamarack trees. Its edible qualities are very similar to those of the next species, from which it is easily known when moist, by reason of the viscidity of its cap. It was first recorded as edible in the Forty-second Report.

Tricholoma imbricatum *Fr.*

IMBRICATED TRICHOLOMA.

Plate 21. Figs, 6 to 11.

Pileus dry, innately squamulose, fibrillose toward the margin, brown or reddish-brown; lamellæ white, or yellowish white, becoming reddish or spotted with reddish-brown; stem solid, white and pulverulent at the top, colored like but generally paler than the pileus toward the base; spores elliptical, white, .00025 in. long.

The Imbricated tricholoma does not differ very greatly from the Changing tricholoma in size and color, but it can easily be distinguished from that species by the dry, not viscid, upper surface of its cap and by its solid stem. The cap is generally a little darker colored and its surface often presents a somewhat scaly appearance as if the epidermis had been torn into minute, irregular, scale-like fragments. The color is a cinnamon brown or dark reddish-brown. The flesh is firm, white or whitish, and has a pleasant farinaceous odor and taste when fresh.

The gills have very nearly the same color and character as those of the Changing tricholoma.

The stem also is similar to the stem of that species, but it has no central cavity. Sometimes when old it becomes hollow by the mining of insects.

Cap two to four inches broad, stem two to three inches long, one-third to two-thirds of an inch thick.

This species grows under or near coniferous trees, such as pine, spruce, hemlock and balsam-fir. It appears in September and October. Like the preceding species it sometimes grows in clusters. It is often associated with *Tricholoma vaccinum*, a species very similar to it in size and general appearance, but which differs in three particulars. The margin in the young plant is covered with a soft downy or cottony coat, the stem is hollow and the taste is bitter or unpleasant. Nevertheless some writers class it among the edible species. Gillet says it is edible, but not of a very delicate flavor. So much do the two species resemble each other that so good a mycologist as Persoon seems to have confused them under the common name *Agaricus rufus*. A mistake of this kind by any one using the Imbricted tricholoma for food would not be serious, since this closely related plant has no dangerous properties.

Tricholoma personatum *Fr.*

MASKED TRICHOLOMA.

Plate 22.

Pileus moist, glabrous, variable in color; lamellæ crowded, rounded behind, free or nearly so, separable from the pileus, violaceous becoming sordid-whitish or fuscous; stem short, solid, fibrillose, whitish, commonly tinged with lilac or pale violet; spores elliptical, sordid-white, .0003 to .00035 inch long.

The Masked tricholoma is worthy of a place among the esculent species of the first class. When young the cap is very convex and firm, but when mature it is nearly flat and the flesh is more soft. It is very smooth and usually quite regular in shape when young, but in older plants the margin sometimes becomes irregular or wavy. In young plants the margin is rolled inwards and often whitened with downy or mealy particles or frosted with a slight bloom, but in old ones it is naked, and in wet weather it may even be curved upwards. The cap is apt to become water-soaked in wet weather, in which condition it has an uninviting appearance. It varies much in color, but generally it has a pale lilac hue, which is apt to change with age to a russety shade in the center. Occasionally the color of the cap is almost white or pale grayish. The flesh when dry is nearly white and has a pleasant taste.

The gills are closely placed and rounded at the end next the stem, to which they are but slightly attached, or from which they may be entirely free in some cases. They are generally more brightly colored in the young plant than in the mature one.

The stem is generally rather short and stout, its length being less than the diameter of the cap. It is solid, and externally adorned with fibrils and downy particles when young and fresh, but it soon becomes smooth. In color it is like the cap or paler than it. It is sometimes a little thicker at the base than at the top, and in one variety, which I have called var. *bulbosum*, and which is represented by figures 7 and 8, it is very distinctly bulbous.

Cap two to five inches broad, stem one to three inches long, one-half to one inch thick.

It grows in thin woods and in grassy open places. It does not often appear before September, but it may be found till freezing weather stops its growth. It generally grows singly or in groups, but occasionally it is found in clusters of several individuals.

Nearly all writers speak well of its edible qualities. Dr. Badham says that its taste is pleasant, and when not water-soaked it is a fine, firm fungus with a flavor like veal. Letellier states that it can be eaten with pleasure and without the least risk. Others pronounce it edible, very good, highly esteemed, very savory. My own experience leads me to place it among the first-class mushrooms.

In England this species is sometimes called *Blewits* and in France, *Blue stem*, although the color in our plant is more violet or lilac than blue. In Europe it is said to have been sometimes confused with *Tricholoma nudum*, a very closely related species, and also with *Cortinarius violaceus*, the Violet cortinarius, but such mistakes could result in no harm to the eater, for both these are edible and perfectly safe. So far as known, we have no hurtful species with which the Masked tricholoma would be likely to be confused. Its gills are somewhat separable from the hymenophore or flesh of the cap in the same manner as the gills of a Paxillus are, and for this reason the species has sometimes been referred to that genus, but mycologists generally place it in the genus Tricholoma. The spores, when dropped on white paper, have not the clear white color shown by those of most species of Tricholoma. The color is dingy-white or sordid-white.

Clitocybe *Fr.*

The genus *Clitocybe* differs from *Tricholoma* in the character of the gills. They are attached to the stem by their inner extremity as in that genus, but they are not notched or excavated on the edge near the stem, and they are generally decurrent. Several of our species have been recorded as edible, but trial has been made by us of only a few of them. Those here described are tabulated below.

	Cap thick-fleshed, with no reddish hues.......	1
	Cap thin-fleshed, more or less reddish	2
1	Cap grayish, gills close together.............	C. nebularis.
1	Cap brown or blackish-brown, gills wide apart.	C. media.
2	Cap funnel shaped when mature...........	C. infundibuliformis.
2	Cap convex or nearly plane when mature...	C. laccata.

Clitocybe nebularis *Batsch.*

CLOUDED CLITOCYBE.

Plate 23. Figs. 8 to 13.

Pileus fleshy, firm, at first convex, becoming nearly flat; lamellæ crowded, adnate or slightly decurrent, white or slightly tinged with yellow; stem firm, fibrillose, generally thickened at the base; spores elliptical, white, .0002 in. long.

The Clouded clitocybe is a rather large and firm mushroom with the cap at first convex, but when mature it becomes nearly flat or a little depressed. It is smooth and of a grayish or clouded-gray color, often becoming paler with age and sometimes evidently with a slight yellowish tint. The center of the cap is sometimes darker than the margin. In the American plant the color is generally paler than that of the European plant, as indicated by the published figures. The color of the flesh is white.

The gills are quite closely placed, and in the young plant are attached to the stem by the whole width of the inner extremity, but as the cap expands they appear to run down upon the stem and terminate in a narrow point. They are white or slightly tinged with yellow.

The stem is usually rather short and stout. It is thickest at the base and gradually tapers upward. It is firm and more or less adorned with longitudinal fibrils. It is generally paler than the cap. Its center is somewhat softer in texture than the exterior parts.

Cap two to five inches broad, stem one and a half to three inches long, one-half to one inch thick.

The usual habitat is among fallen leaves in woods where it appears in September and October. I have never seen it in fields. It is a rare species with us. It sometimes grows in clusters.

Some of the French mycologists do not admit this among the edible species, but English writers speak highly of it. Cordier says it is bad; Richon and Rozé say that its flavor is scarcely agreeable, and that it should be placed among the suspected species. Quelet asserts that he has eaten it often and found it good, but that sometimes it is indigestible and nauseous. Roques classes it as edible. Bulliard says "it is very agreeable to the taste." According to Badham it requires very little cooking and the flesh is perhaps lighter of digestion than that of any other. Stevenson quotes it as edible and very good, with a somewhat pungent taste and an odor of curd cheese. Cooke regards it as one of his favorite mushrooms, to which he gives special attention, and he thinks that no person, having a practical knowledge of its qualities, would place it among the suspected species.

Clitocybe media *Peck.*

INTERMEDIATE CLITOCYBE.

Plate 23. Figs. 1 to 7.

Pileus at first convex, becoming flat or slightly depressed, dry, dark grayish-brown or smoky-brown, the margin often wavy or irregular, the flesh white, taste mild; lamellæ broad, subdistant, adnate or decurrent, whitish, the interspaces somewhat venose; stem not at all or but slightly thickened at the base, colored like or a little paler than the pileus; spores elliptical, white, .0003 in. long.

The Intermediate clitocybe is very similar to the Clouded clitocybe in size and shape. Indeed, it might easily be mistaken for a dark colored variety of that species, but when examined closely it will be seen that the gills are not so close together as in that species, the spaces between them being noticeably wider, and often marked with little ridges or cross veins. The stem is also more cylindrical, scarcely tapering at all from the base upwards. In this respect it differs also from the Club foot clitocybe, *Clitocybe clavipes*, a species scarcely differing from the Intermediate clitocybe in color, although it has a more soft and spongy flesh and its cap is more narrow and more gradually tapering downward into the stem. It therefore appears somewhat like an inverted cone, while the stem may be compared to a long and narrow cone whose apex is united with the apex of the inverted one formed by the cap.

The Intermediate clitocybe is very scarce and has been found in cool deep woods only, growing among mosses that thickly carpeted the ground. It occurs in September. Its flesh is well flavored and it is a mushroom well worthy a place among the most desirable species. It is a matter of regret that it is not more abundant. It was first published as edible in the Forty-second Report of the State Museum, its edible qualities having been tested by the writer.

Clitocybe infundibuliformis *Schæff.*

Funnel-form Clitocybe.

Plate 24. Figs. 1 to 6.

Pileus at first convex and umbonate, becoming infundibuliform, dry, flaccid, reddish or pale tan color, fading with age; lamellæ decurrent, white; stem generally tapering upward from the base, colored like or paler than the pileus; spores somewhat elliptical, white, .0002 to .00025 in. long.

The Funnel-form clitocybe is a neat and rather pretty species, easily recognized by the funnel-like shape of the mature cap and its pale red color. When young the cap is slightly convex and often adorned with a very small prominence or umbo in the center. If observed closely it will be seen to be coated with a slight down or silkiness, especially on the margin. But as the cap expands it becomes depressed in the center, and in wet weather it resembles somewhat a large wine-glass in shape. The color is apt to fade and sometimes the margin of the cap becomes irregular or wavy. Occasionally specimens occur in which the cap is almost white. The flesh is thin and white.

The gills also are thin and white or whitish and rather closely placed. They run down on the stem in the mature plant, ending in a narrow point.

The stem is quite smooth and generally tapers upward from the base. It is sometimes white, but more often is colored like the cap. Usually a soft white down or felt is noticeable at its base. This is its mycelium which spreads in the soil or among the fallen leaves in which it grows.

The cap is two to three inches across, the stem is two to three inches long and one-fourth to nearly one-half an inch thick in the largest specimens.

It is not uncommon in woods in summer and autumn. Like many other species it is more abundant in wet weather It delights especially to grow among fallen leaves in mixed woods, and though generally single or scattered in its mode of growth it sometimes forms clusters, in which case the cap is apt to be more or less irregular.

Although small in size and thin in flesh it affords a very delicate and delicious food.

When once known it is easily recognized, and I do not know of any hurtful mushroom in our flora with which it is likely to be confused.

Clitocybe laccata *Scop.*

Laccate Clitocybe. Waxy Clitocybe.

Plate 25.

Pileus thin, convex or nearly plane, sometimes umbilicate, hygrophanous, glabrous or minutely scurfy squamulose; lamellæ broad, distant, adnate or slightly decurrent, more or less tinged with flesh color; stem slender, equal, fibrous, stuffed, colored like the pilcus; spores globose, rough, .0003 to .0004 inch broad.

The Laccate clitocybe is a small but very common species which has a very wide range and is sometimes very abundant. It is also very variable, but easily recognizable when its peculiar characters are understood. It is thin in flesh, not highly flavored and apt to be tough, but because it has been classed among the edible species of Europe and because of its abundance and availability it is here admitted.

The cap is convex or nearly plane, even or umbilicate, smooth or with a slight scurfy roughness. When moist it has a watery appearance, and as this moisture dries the color changes more or less. In the moist state the color is some shade of pale red, buff red or flesh red, but when dry it fades to a grayish or pale ochraceous hue.

The gills are broad, rather wide apart and attached to the stem by their entire width. Sometimes they are slightly decurrent and occasionally emarginate, contrary to the generic character. They have a peculiar pale fleshy red hue which is more persistent than the color of the cap, and which is one of the best characters for the recognition of the species. When mature, they are apt to be dusted by the white spores.

The stem is rather long and slender, having a fibrous appearance and being either straight or flexuous. It is stuffed or almost hollow, rather tough and colored like the cap.

The cap varies from half an inch to two inches in horizontal diameter, and the stem from one to three inches in length and one to three lines in thickness.

There are several well marked varieties that have received names. One of the prettiest is the Amethyst variety, Variety *amethystina*, Figs. 23 to 27, in which the moist cap is much darker colored than in the ordinary form, and when dry it is of a grayish hue, but the gills have a beautiful deep violaceous color which is quite persistent. The spores are rather large and the lamellæ more decurrent than usual. It may be a good species.

In Variety *pallidifolia*, the pale gilled variety, the gills are much paler than usual, being but slightly tinged with the ordinary flesh color.

In Variety *striatula*, the striatulate variety, the plants are small, the cap is smooth, and so thin that shadowy lines or striations are seen on it radiating from near the center to the margin. This variety usually grows in very damp or wet places. Its spores are rather large, which may indicate a good species.

The Laccate mushroom may be found from the beginning to the end of the season, if the weather is not too dry. It is not particular as to its place of growth; but occurs in woods, groves, swamps or open fields, growing on naked ground or among grass, mosses or fallen leaves It is especially fond of pine woods or groves where the soil is kept shaded and moist.

Because of its departure from the generic character in its peculiar gills and spores it has been placed by some writers in a distinct genus under the name *Laccaria laccata.* It is closely related to *Clitocybe ochropurpurea* B. & C., a much larger species with a paler cap and brighter gills, and a short thick stem and often an irregular deformed development. This also should be associated with it generically under the name *Laccaria ochropurpurea*, if that genus is sustained.

Pleurotus *Fr.*

The genus *Pleurotus* scarcely differs from Tricholoma and Clitocybe except in the relative position of the stem and the cap. In these genera the cap is supported by a stem which is attached to it centrally. In Pleurotus the stem is attached to the cap at some point to one side of the center. Sometimes this point is on the very margin of the cap, and in a few species the stem is scarcely developed at all. Some of the species have the gills rounded or notched at the inner extremity as in the genus Tricholoma, and some have them decurrent on the stem as in Clitocybe. A distinctive character which is worthy of notice in this genus is found in the habitat. All the species, with which we have to do, grow on dead wood, while those of the two preceding genera, so far as here given, grow on the ground. Generally their flesh is more tough than in terrestrial species. Sometimes they grow from dead spots or dead branches of living trees, and are often out of reach, being far up from the ground.

	Stem present, distinct	1
	Stem wanting or indistinct	P. ostreatus.
1	Spores white	P. ulmarius.
1	Spores faintly lilac-tinted	P. sapidus.

Pleurotus ulmarius *Bull.*

ELM PLEUROTUS.

Plate 26. Figs. 1 to 4.

Pileus convex or nearly flat, firm, glabrous, white or centrally tinted with reddish-yellow or brownish-yellow, flesh white; lamellæ rather broad, rounded or notched at the inner extremity, adnexed, white or creamy white; stem firm, eccentric, generally curved, white or whitish; spores globose, white, .0002 to .00025 in. broad.

The Elm pleurotus, or elm tree mushroom, is a conspicuous object, growing, as it generally does, from dead places in or on the stumps of cut branches of standing elms. By its large size and white color it easily attracts attention. Its cap is broadly convex or nearly flat, quite smooth and usually white or whitish. Sometimes it is centrally tinged with a rusty or dull yellowish hue, and occasionally adorned with roundish spots as shown in figure 2. I have never seen the American plant as highly colored as some of the figures of the European plant. Sometimes the epidermis will be found cracked in small areas giving to the cap a scaly or tessellated appearance, and occasionally it cracks longitudinally. The flesh is firm and white.

The gills are quite broad and not very closely placed side by side. They are notched at the inner extremity as in species of Tricholoma. They are white, or when old, tinged with yellow.

The stem is firm and solid and united to the cap a little to one side of the center. It is generally more or less curved. This is especially the case when it grows from the side of the trunk of the tree. It is commonly smooth, but sometimes a little downy or hairy at the base. In color it is white or whitish.

Cap three to five inches broad, stem two to four inches long, one-half to three-fourths of an inch thick.

It appears from September to November. It is not uncommon to see this mushroom late in autumn growing on the elms that have been planted as shade trees along the streets of our cities and in our public parks. It grows especially on those that have been severely trimmed or had their tops cut away. Its time of appearance is so late in the season that it is not often infested by insects. It therefore persists a long time and will keep two or three days without harm. Its flesh is not as tender as that of many of the mushrooms that grow on the ground, but it has an agreeable flavor and is quite harmless. Most tree-inhabiting mushrooms grow more slowly and are, therefore, more tough and more slow to decay than those growing on the ground. They are also less easily collected since they often grow high up on standing trees. In consequence of their persistent character they are easily dried and preserved for winter use.

The Elm pleurotus sometimes grows on other than elm trees, as the maple and poplar. Occasionally when growing from the cut surface of an upright stump, or from the upper side of a branch, its stem is straight and attached centrally to the cap. Such a form has received the name Variety *verticalis*. A form is said to grow in Europe in which the whole stem is downy or hairy, but I have not found it in our State. According to Vittadini the Elm pleurotus is a fungus of first quality and very desirable. Letellier commends it as an article of food because of its large size, and Dr. Cooke mentions one specimen which was so large that it made a good meal for three or four persons. Quelet says that it is sapid, but should be eaten while young. When dried specimens are soaked several hours in water they resume their original size and are nearly as good as if fresh.

Pleurotus sapidus *Kalchb.*

SAPID PLEUROTUS.

Plate 27.

Pileus convex or depressed, glabrous, often irregular, variable in color, flesh white; lamellæ subdistant, decurrent, whitish; stems commonly tufted, growing from a common base, eccentric or lateral, glabrous, white or whitish; spores oblong, pale lilac, .00035 to .00045 in. long.

The Sapid pleurotus generally grows in tufts or crowded clusters, whose stems are more or less united at the base, and whose caps crowd and overlap each other. The caps are smooth and firm and in wet weather are somewhat moist. They are convex on the upper surface or centrally depressed, and owing to their crowded mode of growth are often very irregular in shape. They vary greatly in color, being white, yellowish, ashy gray, dull lilac or even brownish. The flesh, however, is white.

The gills are rather broad and somewhat wide apart. They run down on the stem and there often branch and connect with each other. They are whitish or yellowish and sometimes present a ragged or torn appearance.

The stems are generally short and two or more usually grow from a common base. They are commonly white and smooth, solid and firm, and attached to the cap laterally or a little to one side of the center, though specimens occasionally occur in which the stem is quite central.

The peculiar character which distinguishes this species, and about the only one that is available for separating it in all cases from the next, is the lilac tint of the spores. When these are thrown down on black or brown paper they have a sordid, whitish appearance, but if caught on white paper the color of the mass is a very pale dull lilac as represented by figure 9. It has seemed to me that they are whitish, even on white paper, when first thrown down, but after a short exposure or after a greater accumulation the lilac tint appears. Notwithstanding this peculiarity in the color of its spores the species is classed among the white-spored mushrooms, and it is perhaps a question whether it is, after all, anything more than a variety of the next species.

Cap two to five inches broad, stem one to two inches long, one-fourth to two-thirds of an inch thick.

The Sapid pleurotus grows in woods and open places from June to November. It is quite common and more abundant in wet weather. It inhabits decaying wood and may be found about old stumps, prostrate trunks of trees or even on dead or dying trees while yet standing. Sometimes it appears to grow from the ground, but a careful investigation would show that it starts from some decaying root or some buried piece of wood. In Europe it is said to grow on elm and oak, but in our State it inhabits other trees also, such as beech, birch, maple and horse chestnut. I have eaten it both fried and stewed and consider it about the same as the Oyster mushroom in edible qualities. In Hungary, according to Dr. Kalchbrenner, it is eagerly sought for food in the woods, and is also cultivated on pieces of elm trunks in gardens.

Pleurotus ostreatus *Fr.*

Oyster Pleurotus. Oyster Mushroom.

Plate 26. Figs. 5 to 9.

Pileus convex, soft, imbricated, glabrous, moist, whitish, cinereous or brownish, flesh white; lamellæ broad, decurrent, anastomosing at the base, white or whitish; stem short, firm, mostly lateral and indistinct or absent; spores oblong, white, .0003 to .0004 in. long.

The Oyster mushroom or Oyster fungus, so named because of its shape probably, rather than because of its flavor, is very similar to the Sapid mushroom. According to the descriptions of the European plant it is quite variable in color, but with us the prevailing colors are white or ashy-gray, changing to yellowish in the old or dried state. The stem when present is generally shorter than in the Sapid pleurotus and more often lateral. It is sometimes hairy at the base and sometimes wanting entirely. But the caps are clustered and overlapped very much as in that species, and the gills are the same in both. For table purposes there is little need of keeping the two distinct. Both are much more liable to be infested by insects than the Elm pleurotus. Both grow on decaying wood and at the same season and under similar conditions. The Oyster mushroom is apparently much less frequent in our State than the Sapid mushroom. It has long been classed among the esculent species, but in consequence of the toughness of its flesh it does not rank as a mushroom of first quality. Miss Banning states that she has eaten it both raw and cooked, but that she failed to detect any resemblance between its flavor and that of the oyster. Dr. Cooke says that it is a fleshy fungus, and when slowly and carefully cooked it is a pleasant and digestible one, but that it may be spoiled by bad treatment. French writers speak well of it and agree that it is both safe and excellent, but some recommend it only while young and tender. No charge of being deleterious is brought against it.

The remaining white-spored genera here represented differ from all the preceding either in the character of the gills or of the flesh.

Hygrophorus *Fr.*

In the genus *Hygrophorus* the gills of the mature plant have a soft waxy texture which distinguishes them from all others. They are not easily separable into the two membranes which form their two surfaces, as in the preceding genera. As in Pleurotus, the gills of some of the species are rounded or notched at the end next the stem, but of others they are decurrent on it. Those with decurrent gills bear considerable external resemblance to the species of Clitocybe, but the gills are generally thicker and much further apart than in that genus. No species of Hygrophorus is known to be dangerous, though two or three have been classed as suspected.

Hygrophorus pratensis *Fr.*

MEADOW HYGROPHORUS. PASTURE HYGROPHORUS.

Plate 28. Figs 11 to 17.

Pileus compact, convex turbinate or nearly flat, glabrous, the margin thin; lamellæ thick, distant, decurrent, whitish or yellowish, the interspaces veiny; stem short, glabrous, white or whitish.

sometimes yellowish; spores broadly elliptical, whitish, .00024 to .00028 in. long.

The Meadow hygrophorus, also called Pasture hygrophorus and Buff-caps, is a rather small but stout-appearing mushroom, which is quite variable in the color of its cap. This is commonly buff or yellowish, more or less tinged with red or tawny hues. Sometimes it is almost white. When young, the cap is nearly hemispherical or strongly convex, but with advancing age the thick fleshy center becomes more prominent. In full maturity the thin margin is apt to be extended horizontally so that the surface of the cap is nearly flat and its shape resembles an inverted cone whose sides are fluted by the widely separated gills. The flesh is white or nearly so and has a mild taste.

The thick gills extend far down on the stem in the mature plant, and in the bottom of the spaces between them cross veins may be seen connecting them together.

The stem is mostly white, or if tinged at all with the color of the cap, it is paler than it. Sometimes it tapers downward, becoming more narrow at the base than in the upper part. Its surface is smooth.

Cap one to two inches broad, stem one to two inches long, one-fourth to one-half an inch thick.

This species grows in old pastures and clearings or in thin woods. It is often found in old abandoned fields partly overgrown with brakes and bushes. It may be found from July to September.

It has, for many years and by nearly all writers on this subject, been classed with the edible species, and Dr. Cooke pronounces it to be thoroughly wholesome and of delicate flavor.

Hygrophorus miniatus *Fr.*

VERMILION HYGROPHORUS.

Plate 28 Figs. 1 to 10.

Pileus thin, fragile, at first convex, becoming nearly plane, glabrous or minutely squamulose, often umbilicate, generally red; lamellæ distant, adnate, yellow, often tinged with red; stem slender, glabrous, colored like the pileus; spores elliptical, white, .0003 in. long.

The Vermilion hygrophorus is a very highly colored, beautiful species. It is small, but in some localities it is so abundant that no difficulty need be encountered in procuring a quantity of it sufficient for a meal for a large family. The cap is thin and fragile, and it must be handled with care or it will be broken. In the young plant it is convex, but it expands with age until it is flat or even centrally depressed. Its surface is sometimes smooth and even shining, again it is roughened as if coated with minute scurfy scales. Frequently there is a little central depression or umbilicus in it. When young and moist the margin often shows slight striations, but in the dry or mature plant these are not seen. The margin is often irregular or wavy, and in very wet weather it may become curved upwards so that the cap becomes concave. The color is usually a bright red or vermilion, but sometimes it fades to paler or orange shades, and there is a variety in which the whole plant is yellow. This I have called variety *lutescens* and have represented it by figures 9 and 10. The bright color of this plant is apt to disappear in drying.

The gills are commonly yellow, but sometimes they are more or less tinged with the red color of the cap. They are not so wide apart as in the Meadow hygrophorus. They are generally attached to the stem by the entire width of the inner extremity, but specimens occur in which they are plainly notched at the inner end, and others are found in which they are slightly decurrent.

The stem is rather slender. In young plants it is solid, but in older ones it becomes wholly or partly hollow. It is colored like or sometimes paler than the cap.

Cap one-half to two inches broad, stem one to two inches long, one to two lines thick.

The Vermilion hygrophorus grows in woods, swamps and old fields in soil either wet or dry, among mosses or fallen leaves or on naked earth. It is sometimes found in great profusion in recent clearings over which fire has run. In such places it commonly attains a larger size than in dense woods, the cap attaining a diameter of even three inches. It is evidently fond of moisture and is more abundant in wet weather than in dry. It will grow even in the wet Sphagnum of peat bogs, and yet it is also found on the dry knolls and hillocks of the Adirondack region, growing freely under the shade of the brakes (*Pteris aquilina*) that cover them. It thus shows a great adaptability to varying conditions. It grows either singly, in groups or in clusters, and may be found from June to September. It is especially abundant in the Adirondack region.

Having experimented with this species twenty years ago I was agreeably surprised to find it scarcely surpassed by any in tenderness of substance and agreeableness of flavor. It was first recorded as an edible species in the Twenty-sixth Report of the State Museum.

A common species that closely resembles it is the Chantarelle hygrophorus, *Hygrophorus Cantharellus.* This is a smaller and more graceful plant, having a long slender stem and gills running very distinctly down on it. The colors of the two plants are the same, and they might easily be confused unless the character of the gills is noticed.

Lactarius *Fr.*

In the genus *Lactarius* the gills exude a milky or colored juice where cut or broken. This character alone is sufficient to distinguish this genus from all others, but there are other features which are quite characteristic. The texture is such that while the flesh seems firm and rigid it is nevertheless very brittle and easily broken. The fracture is quite even and not ragged or torn as in more fibrous or filamentous substances. The species are mostly stout and fleshy in appearance and resemble in outline those of the genus Clitocybe. In the mature plant the cap is generally somewhat funnel-shape or like a broad inverted cone. The gills are more or less decurrent and the stem is mostly stout and short. Some of the species have the cap adorned with circular zones or bands more highly colored than the adjacent parts. This feature is rarely seen in any other genus. The taste of the juice and flesh in many species is very acrid or hot and burning, like that of cayenne pepper. Unless this can be destroyed by cooking or drying such species must be considered wholly unfit for food. There is much uniformity in the spores of all the species. They are globose or nearly so and roughened by minute points or protuberances. Their color may be white or yellowish, according to the species.

Lactarius deliciosus *Fr.*

DELICIOUS LACTARIUS.

Plate 29.

Pileus at first convex and often slightly umbilicate, becoming nearly plane or centrally depressed, sometimes almost funnel-shaped, glabrous, yellowish-orange or grayish-orange varied with brighter mottled zones; lamellæ orange-colored; stem glabrous, often marked with a few orange-colored spots, colored like or paler than the pileus; juice orange-colored; spores globose, yellowish, .0003 to .0004 in. broad.

The Delicious lactarius is well marked by its peculiar colors and is easily distinguished from all our other species of Lactarius by its orange-colored juice The cap is convex when young, but in the mature plant it sometimes becomes centrally depressed or even shaped like a funnel. It is smooth, and when fresh and moist its surface is slightly viscid. Its color is some shade of orange enlivened by mottled circles or zones of deeper hue. These zones often appear as if composed of numerous confluent spots. They are less distinct in old plants, in which also the ground color fades and becomes tinged with greenish hues, as shown in figure 4. Such plants have an unattractive appearance and should not be used for food. The flesh is whitish, but tinged with orange, especially along the line of attachment of the gills. There is often a slightly acrid taste to it when fresh.

The gills are very similar to the cap in color. The orange-colored milk exudes from these in drops if they are cut or broken. This milk or juice pervades the whole plant and may exude from wounds in any part. Wounds and bruises slowly assume a dull greenish hue.

The stem is colored like or a little paler than the cap and is often adorned with a few bright orange spots. It is generally quite short when growing on naked ground, but longer if growing among mosses. In some cases it is narrowed at the base, in others not. It is generally hollow in mature plants.

Cap two to five inches broad, stem one to four inches long, one third to two-thirds of an inch thick.

Common in woods, groves and damp, mossy places. It is especially fond of pine woods and mossy swamps, though not by any means limited to these. It may sometimes be found in swamps when dry weather prevents its growth elsewhere. It appears from July to October.

The following are some of the many quotations that might be made concerning the edible qualities of this mushroom. It is one of the best mushrooms with which I am acquainted and fully deserves its name and the high estimation in which it is held. Its flesh is firm, juicy, sapid and nutritious. *Badham.* It is the most delicate and the safest mushroom known. *Vittadini.* It is a species highly esteemed and generally liked. It is very good when properly cooked. It is also good preserved in vinegar. *Richon and Rozé.* It is certainly very good when cooked with care. *Quelet.* It is most excellent. *Berkeley.* Fried with butter and salt it has a taste like lamb. *Seynes.* It is edible but it is not as good as its name seems to indicate. *Gillet.* Served at the annual Woolhope dinners, it has always given satisfaction. *Cooke.* It is the most delicious mushroom known. *Smith.* My own experience with it leads me to consider it very good but scarcely equal to the best. Doubtless differences of opinion concerning it may be due in part to different methods of cooking. It is said to require delicate cooking, for too long or too rapid cooking will make it tough. One of the best methods is to bake gently three-fourths of an hour in a close covered dish, having seasoned it with butter, pepper and salt. I consider it one of our most valuable mushrooms, because of its common occurrence and goodly size, and because of the almost total impossibility of mistaking any deleterious species for it if regard be had to the color of its juice. From this it is sometimes called the Orange milk mushroom.

Lactarius volemus *Fr.*

ORANGE-BROWN LACTARIUS.

Plate 30.

Pileus convex or nearly plane, sometimes becoming centrally depressed or almost funnel-form, glabrous, dry, golden-tawny or brownish-orange, sometimes darker in the center; lamellæ crowded, adnate or subdecurrent, white or tinged with yellow; stem colored like or a little paler than the pileus, glabrous; juice white, abundant; spores globose, white, .00035 to .00045 in. broad.

The Orange-brown lactarius is a clean, firm and attractive species. It varies but little in color and is, therefore, easily recognized. The cap is at first convex and, as in nearly all species of Lactarius, with advancing age it expands and becomes nearly flat or is somewhat depressed in the center and slightly funnel form. It is very smooth and generally quite regular. Sometimes it has a slight umbo or protuberance in the center as shown in figure 2. In the mature plant the epidermis sometimes cracks into small angular patches or areas. In the descriptions of the European plant this is given as one of the distinguishing characters of the species, but it is by no means constant in the American plant. Indeed, it is more often absent than present. The color of the cap is a peculiar mixture of red, brown and yellow, somewhat difficult to describe. It has been called reddish-tawny, golden-tawny, brownish-orange and orange-brown. It varies somewhat in the depth of coloring, some being a shade darker or a shade paler than others, but the essential color is quite constant. In variety *subrugosus*, represented in figure 6, the margin of the cap is roughened with wrinkles which form irregular reticulations. In this variety the color is generally a little darker than in the normal forms. The flesh is white, sometimes tinged with yellow.

The gills are closely placed side by side and are attached to the stem by the whole width of their inner extremity, or in mature funnel-form caps they run down on the stem somewhat. They are white or yellowish. Where cut or broken a white juice or milk exudes in drops, and wounds or bruises quickly assume a brownish hue.

The stem is colored like the cap, but generally it is a little paler. It is quite firm and smooth and generally solid. It varies in length but is not often longer than the diameter of the cap.

Cap two to five inches broad, stem one to four inches long, one-third to three-fourths of an inch thick.

It grows in thin woods and open places. It is especially found in woods and groves of chestnut and oak. It is a common species and occurs from July to September. It is most abundant in warm showery weather. Usually many individuals will be found growing in company or in groups, so that it is not difficult to obtain a generous supply for the table. It is remarkably free from the attacks of insects, which is a point in its favor as an esculent. Sometimes in drying it emits an unpleasant odor, which is perhaps an indication that the specimens should not be kept too long before cooking. Many writers affirm that this fungus is quite as good raw as it is cooked, but to me it often has a slightly acrid or astringent flavor in the raw state. All acknowledge it to be edible.

Cordier says it is excellent and among the most agreeable edible mushrooms, and that in some countries it is eaten raw as well as cooked. Paulet declares it to be fine and delicate and that it is eaten with delight. Quelet asserts that it is better raw than cooked and that its sweet milk affords an agreeable drink for the botanist in the warm days of summer. Stevenson gives it as edible and delicious. My own experience with it would scarcely lead me to class it as more than an ordinarily good mushroom. Perhaps it might be improved by better cooking than I was able to give to it. I have not eaten it uncooked.

There are two or three species somewhat similar to the Orange-brown mushroom in color, but none of them are hurtful. We are sometimes cautioned against mistaking the Red lactarius, *Lactarius rufus*, for it. This is reported by Fries as very poisonous. I have found this on the high summits of the Catskills and in the cold mossy swamps and woods of the Adirondack region, but never in company with the Orange-brown lactarius. It is easily distinguished by its more red color, its smaller size, and especially by its exceedingly acrid burning taste. No one who had tasted it in the raw state could be induced to swallow the least particle of it.

Russula *Fr.*

The species of *Russula* are very similar to those of the genus Lactarius in size, shape, structure and texture. The spores also are of the same character. But this genus is at once separated by the absence of any milky or colored juice. The coloration is also peculiar in many of the species, bright or clear red and purplish hues prevailing. This character doubtless suggested the name of the genus. No species exhibits the colored circular zones seen on the caps of so many species of Lactarius. The taste of the flesh is very similar in both, in some species it being peppery or acrid, in others mild.

The following is the only species which I have tried, though several have been recorded as edible.

Russula virescens *Fr.*

GREENISH RUSSULA.

Plate 31.

Pileus at first nearly globose, then expanded and convex or centrally depressed, firm, dry, adorned with small flocculent patches or warts, greenish, sometimes tinged with yellow; lamellæ moderately close, free or nearly so, white; stem short, firm, white; spores nearly globose, slightly roughened, white, .00024 to .0003 in. broad.

The Greenish russula is quite distinct and easily recognized by its green or grayish-green and warty cap. In the young plant this is rounded or almost globular, but it soon becomes convex and sometimes when mature it may even be centrally depressed. Its surface is dry, not viscid as in some other greenish species, and it is broken up into small scales or wart-like patches. The margin in the typical form is even, but specimens often occur in which it is marked with impressed lines or striations as in figures 3 and 4. The margin of the expanded cap often becomes split. The flesh is white and has a mild taste.

The gills are white or whitish. They are narrow at the inner extremity and barely reach the stem. Generally some of them are forked and often a few shorter ones intervene between the long ones.

The stem is commonly shorter than the diameter of the cap. It is smooth, white and solid or somewhat softer and spongy in the center.

Cap two to four inches broad, stem one to two inches long, one-half to three-fourths of an inch thick.

In grassy grounds, groves or thin woods. July and August.

A green color in mushrooms is very rare, but in the genus Russula there are several species that exhibit it or an approach to it. But these all lack the wart-like adornments that characterize the Greenish russula, and therefore need not be mistaken for it. The color in our plant is not a bright green, but one more or less mingled with gray or yellowish. Sometimes the central part of the cap is more highly colored than the margin and sometimes it is paler, exhibiting here the yellowish tints.

Vittadini places this among the most safe and delicate species of Russula. Roques speaks highly of it, and says it can be eaten with entire confidence. According to Cordier it is a delicious mushroom with a pleasant taste and an agreeable odor. Richon and Rozé say it has excellent qualities but it needs proper seasoning. One of the most commendable of the edible russulas, edible, but its flavor is improved by cooking, edible but in little demand, are other opinions recorded concerning it. My own experience indicates it as of second-rate quality, but entirely harmless.

Cantharellus *Adans.*

The genus *Cantharellus* is separated from all the preceding genera by the character of the lamellæ. These have an obtuse or blunt edge, and are mostly forked or branched. They are generally narrow. In general appearance the species are not much unlike species of Clitocybe, for the gills are usually decurrent, but their thick branching and anastomosing habit and blunt edge give a very distinct character to the hymenium.

Cantharellus cibarius *Fr.*

CHANTARELLE.

Plate 32.

Pileus fleshy, firm, convex, becoming expanded or slightly depressed, glabrous, yellow, the margin at first involute, then spreading and often wavy or irregular; lamellæ narrow, thick, distant, decurrent, branched or anastomosing, yellow; stem firm, glabrous, solid, yellow; spores elliptical, pale yellowish, .0003 to .0004 inch long.

The Chantarelle is beautiful in color if not in shape, and is most easily recognized. Its color is a uniform rich egg-yellow, which is very constant. This extends to all parts of the plant except the inner flesh, which is white. The suface of the cap is smooth, but owing to the lobing and wavy character of the margin the shape is often irregular and unsymmetrical. The cap is generally convex or nearly flat above, but sometimes it is centrally depressed. It is gradually narrowed downwards to the stem, often presenting the general outline of a broad inverted cone.

The gills are narrow, with a rounded or blunt edge and with irregular branches which often connect with adjacent gills. In some individuals they are more branched than in others.

The stem is variable in length. It is often curved or slightly crooked, and sometimes tapers downward. It is smooth and solid, and by some it is considered as good as the cap for food.

Cap one to three inches broad, stem one to two inches long one-fourth to one-half an inch thick.

It grows in woods and open places. It is a common species, and may be found from June to September. A favorite habitat is in the deep shade of hemlock or spruce trees, but it also grows freely in thin woods of deciduous trees in wet, showery weather. It commonly grows in groups but sometimes in curved lines, as if trying to form a "fairy-ring." The European plant is said to exhale an odor like that of ripe apricots, but I have not been able to detect any decided odor in the American plant. The taste of the raw plant is often a little pungent or acrid.

The Chantarelle has long been celebrated for its edible qualities. Fries says that it is justly enumerated among the most sapid fungi; Badham, that no fungus is more popular; Cooke, that it is alike esteemed in France, Germany, Austria and Italy, where it is eaten regularly and exposed in the markets for sale; Gillet, that it is an excellent plant whether used as food or as a condiment; Stevènson, that it is edible and delicious. According to Berkeley, it is occasionally served up at public dinners at the principal hotels in London on state occasions, when every effort is made to secure the rarest and most costly dainties. Miss Banning affirms that she has eaten it both raw and cooked and that by a confirmed fungus eater it would be pronounced most charming. My own trials of it would lead me to place it among the best and most important of our wild mushrooms.

The Orange chantarelle or False chantarelle, *Cantharellus aurantiacus*, is the only species liable to be mistaken for the edible chantarelle. It may at once be recognized by the orange color of its gills, which are also thinner and more close and are regularly and repeatedly forked. The color of its cap is a paler and more dingy yellow, varied with smoky-brown tints.

Marasmius *Fr.*

The genus *Marasmius* differs from all the preceding genera by the tough texture of the small thin plants that compose it. The plant quickly withers or shrivels in dry weather and revives again under the influence of moisture. The gills are thin and have an acute edge. They are rather tough and flexible like the cap. The spores are white.

Marasmius Oreades *Fr.*

FAIRY-RING MUSHROOM.

Plate 14. Figs. 12 to 21.

Pileus fleshy, tough, glabrous, convex or nearly plane, often somewhat umbonate, reddish or tawny-red, becoming paler with age or in drying; lamellæ broad, distant, rounded behind or free, whitish or yellowish; stem slender, tough, solid, coated with a close dense villosity, whitish; spores nearly elliptical, white, .0003 to .00035 in. long.

The Fairy-ring mushroom has received this name because of its tendency to grow in rings or circles. In France it is called False mousseron and in England, Scotch bonnets. It is also called Fairy-ring champignon. When young and moist its cap is reddish, tawny-red or pale yellowish-red, but it becomes paler with age or as the moisture disappears. When dry it is generally pale-yellow or buff, as shown in figures 16 and 17. Sometimes it is slightly striated on the margin, especially when moist, as shown in figure 12. Often it is prominent in the center as if broadly umbonate. This is seen in figures 13 and 14. The flesh is rather thin, white and inclined to be tough.

The gills are rather broad and wide apart. They are rounded at the inner extremity and scarcely or but slightly attached to the stem. They are whitish or yellowish.

The stem is rather slender but solid and quite tough. It is covered with a fine close villosity or tomentum which can be scraped away, revealing the smooth surface of the stem beneath. Its color is whitish or pale grayish.

Cap one to two inches broad, stem one to two and a half inches long, scarcely one-fourth of an inch thick.

Common in pastures, lawns and grassy places by roadsides. May to October; appearing in wet weather or after heavy rains. It usually grows in groups, sometimes in arcs of circles or in complete circles or even in lines. It sometimes forms clusters.

It has long been esteemed as edible, but owing to its small size and somewhat tough substance it has not gained the general popularity it deserves. The following recorded opinions of it will not be without interest: It is very good while young. When young it may be eaten in an omelet. It has a very agreeable taste and odor and gives a delicious flavor to sauces, but it needs cooking a long time. There is little of it and it serves only as a condiment. It is edible and recommended especially as a condiment. It is delicious when broiled with butter. It may be pickled or dried for future use. It is very agreeable but in little demand because of its small size. It is a very delicious mushroom and the abundance in which it everywhere grows makes it a very valuable one. Its tendency to toughness is easily overcome by proper cooking.

There are two or three mushrooms which are somewhat similar to the Fairy-ring mushroom in size and color, and which might by carelessness be mistaken for it. One of these, the Semiorbicular naucoria, *Naucoria semiorbicularis*, sometimes grows in company with it. It may be distinguished from it by the color of the gills, which in the mature plant are rusty brown. Its spores when caught on white paper have a dark rusty or ferruginous color, and its stem is smooth.

The Oak-loving collybia, *Collybia dryophila*, also resembles it in the color of the cap and gills, but its gills are more narrow and very closely placed side by side, and the stem is very smooth and hollow. This usually grows in woods, but sometimes it occurs in open places and then might be taken for the Fairy-ring mushroom through carelessness.

An esteemed correspondent gives the following method of cooking this mushroom:

Throw the clean caps into sufficient boiling water to make a nice gravy when done, and cook them half an hour. Then rub together a small quantity of butter and flour and water, with salt and pepper, and add to the mushrooms, stirring for a moment. Pour on hot toast and serve in a hot dish.

Another method is to put the caps in water with butter and seasoning and let them simmer slowly ten or fifteen minutes. Then thicken with flour and serve alone, or if preferred pour over cooked meat.

As a condiment, chop in small pieces and add to cooking hash, stews, broths or meats just before time to serve.

Polyporeæ.

BOLETI, POLYPORI AND LIVER FUNGUS.

In the family Polyporeæ the cap has no gills on the lower surface, but instead of them there are small tubes, holes or pores. The spores of the fungus are produced on the inner surface of these pores, and when mature, they are dropped or ejected from them into the open air. They may be caught in the same manner as the spores of agarics, but their color has not been ememployed in classification to the same extent that it has in that family. The edible species to be described belong to three genera, *Boletus*, *Polyporus* and *Fistulina*. The distinctive characters of these genera are indicated in the subjoined table.

	Pores compacted together and forming a continuous stratum	1
	Pores each in a distinct tube	Fistulina.
1	Stratum of pores easily separable from the cap	Boletus.
1	Stratum of pores not separable from the cap	Polyporus.

Boletus *Dill.*

The genus *Boletus* contains most of the edible species of this family. The substance of the cap is soft and fleshy and the cellular or porous stratum on the lower surface may be easily and smoothly removed by pressing it outwardly from the stem toward the margin. This is the chief character by which to separate a boletus from a polyporus. Nearly all boleti grow on the ground and have the stem centrally attached to the cap. Unfortunately for mushroom eaters, many of them grow only in warm and wet or showery weather when insects are numerous, and therefore they are very liable to be infested by larvæ. Care must be taken to reject such plants. The stems also must be discarded, for they are too tough to be good. The tubes or pores are apt to form a disagreeable mucilaginous mass if retained, and it is well to remove them before cooking. Some species have a viscid surface to the cap which causes dirt, sticks and leaves to adhere tenaciously to it. The caps of such plants should be peeled before cooking.

	Cap viscid when moist	1
	Cap not viscid	3
1	Stem furnished with a collar	2

1 Stem destitute of a collar .... B. granulatus.
2 Stem dotted above the collar .... B. luteus.
2 Stem dotted both above and below the collar ..... B. subluteus.
3 Stem rough with prominent colored dots............ 4
3 Stem with no dots.................................. 5
4 Margin of the cap adorned with adhering fragments of a membranous veil............................. B. versipellis.
4 Margin of the cap naked .... B. scaber.
5 Stem solid.. B. edulis.
5 Stem hollow or cavernous .... B. castaneus.

Boletus luteus *L.*

YELLOW-BROWN BOLETUS.

Plate 33. Figs. 7 to 12.

Pileus viscid or glutinous, dingy or brownish-yellow, somewhat variegated with darker lines, spots or streaks, flesh white, sometimes tinged with yellow: tubes minute, yellow, becoming darker or ochraceous-yellow with age: stem short, stout, annulate, yellowish and dotted above the membranous annulus: spores yellowish brown, .00025 to .0003 in. long.

The Yellow-brown boletus is one of our rarest fungi. Its broadly convex or nearly flat cap is of a peculiar dingy color formed by a mixture of yellow and brown or reddish-brown, which is very obscurely varied by slightly deeper colored streaks or spots. When wet it is covered with a sticky gluten which is so tenacious that it can be peeled away with the cuticle. The flesh is white, but in mature plants it is sometimes tinged with yellow. The tubes are nearly plane in the young plant, that is, their mouths are in a plane surface. They are at first concealed by the white membranous veil which soon breaks from its attachment to the margin of the cap and shrinks to the stem, on which it forms a kind of collar. The young tubes are yellow, but they assume dingy ochraceous hues with age.

The stem is generally shorter than the horizontal diameter of the cap. It is yellowish above the collar and marked there with small brown dots. Below the collar it is generally more or less covered by a continuation of the veil, so that in very short stemmed plants it appears as if sheathed by a wrapper as in the genus Amanita.

Cap two to five inches broad, stem one to two inches long, one-half to three-fourths of an inch thick.

I have found this species under pine trees only. It occurs in autumn.

European authors have written about its edible qualities as follows: Edible and highly esteemed; its flesh is very tender; it is excellent; it is good and extensively consumed in Germany.

Boletus subluteus *Peck.*

SMALL-YELLOWISH BOLETUS.

Plate 33. Figs. 1 to 6.

Pileus viscid or glutinous when moist, often obscurely streaked or spotted, dingy-yellowish or ferruginous-brown, flesh whitish or tinged with dull yellow; tubes plane and yellow in the young plant, becoming dingy-ochraceous with age, and sometimes convex; stem slender, whitish or dingy-yellowish, annulate, dotted both above and below the annulus; spores oblong or subfusiform, .0003 to .0004 in. long.

The Small-yellowish boletus scarcely differs from the Yellow-brown boletus except in its smaller size and its more slender stem, which is dotted both above and below the collar. Its collar is less membranous in the mature plant, for it collapses or shrinks into a thick, often discolored, band instead of persisting as a flexible membrane. It is quite probable that it has often been confused with the larger species, and so far as its edible character is concerned such confusion would not be serious for there is but little difference in their flavor. This species is much more frequent than the other. It may be found from August to October. It occurs only in pine regions or in places where pine trees once grew. It is especially fond of a light sandy soil shaded by a thin or scattered growth of pine trees.

I do not know of any dangerous species with which these two boleti are liable to be confused.

Boletus granulatus *L.*

GRANULATED BOLETUS.

Plate 34. Figs. 1 to 5.

Pileus viscid or glutinous when moist, variable in color, usually grayish-yellow or tawny, the flesh white tinged with yellow;

tubes at first very pale-yellow, becoming dingy ochraceous with age; stem short, thick, solid, dotted above, whitish or yellowish; spores oblong, rusty-ochraceous, .0003 to .0004 in long.

The Granulated boletus has the cap viscid or glutinous when moist. It varies much in color. It may be pinkish gray, grayish-yellow, reddish or ferruginous-brown or tawny. It is sometimes obscurely spotted from the drying gluten. The flesh is rather thick and white except along the lower surface next the tubes where it is generally tinged with yellow. The tubes are at first pale-yellow or almost white, but they assume the dingy ochraceous hue which is common to many species in maturity. When examined closely, the mouths of the tubes are seen to be dotted with minute granules which give rise to the name of the species. These are at first in the form of drops of a thick juice, but with age they become dry and form brownish granules.

The stem is short, generally less than the horizontal diameter of the cap. It has no collar, but is dotted with small brown granules similar to those on the tube mouths. These granules are more numerous and distinct near the top of the stem. Sometimes they extend to the base, sometimes not.

Cap one and a half to four inches broad, stem one to two inches long, one-third to one-half an inch thick.

The Granulated boletus grows in pine woods and groves or under or near scattered pine trees. It may be found from July to October. It is one of our most common species in pine regions. It usually grows gregariously, many plants occurring in a small area. It sometimes grows in circles.

The absence of a collar on the stem at once distinguishes it from the preceding species.

The American boletus, *Boletus Americanus*, is often found growing with it and may be separated from it by the pale-yellow color, both of the cap and the flesh, and by its much more slender stem.

Nearly all authors agree in placing the Granulated boletus in the list of edible species. Dr. Cooke says that it has given him the greatest satisfaction and that he prefers it to the Edible boletus or, indeed, to any other which he has tried. This is a pretty strong recommendation, and is the more gratifying because this species is so abundant and so easily obtainable.

Boletus versipellis *Fr.*

ORANGE-CAP BOLETUS.

Plate 34. Figs. 6 to 10.

Pileus convex, dry, smooth or at first very minutely tomentose, reddish or orange-red, the flesh white or grayish, the margin adorned with the inflexed remains of a membranous concolorous veil; tubes small, depressed around the stem, whitish or grayish-white, becoming darker or more dingy with age; stem rather long, firm, solid, roughened with small reddish or blackish prominent dots or scales, whitish; spores oblong-fusiform, brown, .00055 to .0007 in. long.

The Orange-cap boletus takes its common appellation from the color of the cap. This is quite constantly a dull yellowish-red, less brilliant than orange. The peculiar distinguishing feature of the species is found in the torn or somewhat scalloped remains of the veil which adheres to the margin of the cap and is of the same color as it. It is generally turned under the margin and adheres slightly to the tubes also. It is not difficult to imagine it to be an extension of the epidermis of the cap.

The tubes are rather long, and in the mature plant they often form a convex mass, those near the margin and those near the stem being shorter than the intervening ones. The color is at first whitish or grayish, but in the mature plant it is considerably darker and not easily defined.

The stem is usually equal to or a little longer than the horizontal diameter of the cap. It is frequently a little narrowed at the top. Its color is similar to that of the young tubes, and it is adorned with numerous reddish or blackish prominent points, dots or scales. In some instances these are uniform in color, in others the two kinds of points are intermingled on the same stem.

Cap two to six inches broad, stem three to five inches long, one-third to three-fourths of an inch thick.

Woods and open places. I find this species especially in sandy soil of pine districts. It is single or scattered in its mode of growth and appears from August to October. It is by no means as common as the next species, to which, in my trials of it, it seemed inferior in esculent qualities. But differences in age or conditions of growth or in methods of cooking might make the difference in flavor. Dr. Cooke says it is equally as good as the next species.

Boletus scaber *Fr.*

ROUGH-STEMMED BOLETUS.

Plate 35.

Pileus glabrous or nearly so, commonly convex, the flesh white or whitish; tubes small, long, soon convex in the mass, depressed around the stem, at first whitish, becoming darker, dingy or brownish; stem firm, solid, often narrowed at the top, whitish or grayish, roughened with numerous small prominent, reddish or blackish dots or scales: spores oblong-fusiform, brown, .00055 to .0007 in. long.

The Rough-stemmed or Scabrous-stemmed boletus may well be called our most common and, in respect to color, our most variable species. Its cap varies in color from white to almost black. It also varies somewhat in shape. It is generally convex or cushion-shaped, but sometimes it is hemispherical or even broadly conical. Its surface is commonly smooth, but occasionally specimens are found in which it is slightly downy or even scaly. The flesh is white or whitish, and the margin in mature plants is often thick and blunt by reason of the lengthening of the tubes.

The tubes are long and mostly convex in the mass in the mature plants. They are much shortened around the stem, thus leaving a depression or cavity there. When young and fresh they are whitish, but they become darker and dingy or brownish with age. Bruises or wounds of the whitish tubes and flesh sometimes produce a slight change in color, it assuming pinkish or blackish hues.

The stem scarcely differs in any respect from the stem of the Orange-cap boletus, and its characters need not be repeated here.

Several varieties have been described, most of which depend on the color of the cap.

Var. *niveus* has the cap white. Fig. 3. This is thought by some to be a distinct species.

Var. *aurantiacus* has the cap orange-red. Fig. 4. This differs from the Orange cap boletus only in the character of the margin of the cap.

Var. *fuliginens* has the cap fuliginous or cinereous fuliginous. Fig. 5.

Var. *fuscus* has the cap brown or dark-brown. Figs. 2, 6 and 7.

Other variations in color are sometimes seen. The epidermis of the cap sometimes cracks into small angular areas or scales, which give it a peculiar appearance. This form has been designated as Var. *areolatus*, but neither this nor the varieties depending on color alone have a very substantial basis. They are probably mere forms rather than true varieties.

Cap one to five inches broad, stem two to five inches long, one-third to two-thirds of an inch thick.

The Rough-stemmed boletus occurs everywhere in woods, swamps and open places, and in sandy, gravelly, loamy or clayey soil. It may be found from June to November. It is easily recognized by its peculiar stem, no other species, except the Orange-cap boletus, having a stem like it. The dots are very different in character from those on the stems of the Granulated boletus and the Small-yellowish boletus. They are dry and fibrous, and not formed by the drying and hardening of a thick juice, as in those species.

Authors differ in their estimate of the edible qualities of this boletus. Some simply pronounce it edible; others say it is less agreeable than the Edible boletus, which is generally preferred to it. Gillet says that it can be eaten without the least fear, but that young plants should be selected for the table, old ones being generally more difficult of digestion. My own experiments with it were highly gratifying, and lead me to consider it a first-class species for the table.

Boletus edulis *Bull.*

EDIBLE BOLETUS.

(Plate 36. Figs. 8 to 12.)

Pileus glabrous, compact, becoming soft with age, grayish-red, brownish-red or tawny-brown, often paler on the margin, the flesh white or tinged with yellow, reddish under the epidermis; tubes soon convex, depressed around the stem, at first whitish, becoming greenish-yellow; stem stout, equal or thickened at the base, reticulated in the upper part, sometimes wholly reticulated, solid, pale or brownish; spores oblong-fusiform, .0005 to .0006 in. long.

The Edible boletus is one of our large species, though it is by no means as common as desirable. When young the cap is firm and the tubes white, with their mouths very indistinct. With advancing age the cap becomes softer and more yielding to pressure and the tubes assume a greenish-yellow or greenish-ochraceous hue and their mouths are then distinct. In color the cap is quite variable, exhibiting a mixture of red, yellow and brown hues. It is most often tawny-brown or reddish-brown on the disk, with paler and yellowish hues on the margin. The flesh is tinged with red under the cuticle.

The tubes form a convex mass, being depressed around the stem.

The stem is stout, solid and firm. It is adorned with a fine network of raised lines just below the tubes, and sometimes these reticulations extend to the base. It is most often somewhat swollen or thickened toward the base. Its color is generally paler than that of the cap, it being brownish or yellowish-brown or dingy white.

Cap four to six inches broad, stem two to six inches long, one-half to one and a half inch thick.

The Edible boletus grows in groves, woods and their borders, and sometimes in open waste places. It occurs in warm, showery weather, during July and August. It holds a prominent place among edible boleti, just as the common mushroom does among edible agarics. It has long been known as an edible species, and on this account its reputation has become widely spread. It has an agreeable, nutty flavor, even when raw, and it has secured favorable mention from nearly all writers on this subject. Badham recommends, especially, this and the Rough-stemmed boletus. Gillet says it is an excellent species, with an agreeable flavor, and that it is largely consumed in some parts of France. It is also cut in slices and dried for future use, and in this way is sold in the markets of Europe.

Boletus castaneus *Bull.*

CHESTNUT BOLETUS.

Plate 35. Figs. 1 to 7.

Pileus convex, becoming nearly plane or depressed, dry, firm, at first minutely velvety, commonly reddish tawny or cinnamon, flesh white, unchangeable: tubes short, small, at first white, becoming yellowish: stem firm, short, stuffed or hollow, colored like the pileus; spores oval or broadly elliptical, pale-yellow, .0004 to .0005 in. long.

The Chestnut boletus is unlike any other species here described, in having a hollow stem. Its cap is at first convex, but it becomes expanded with age and sometimes the margin curves upward, as shown in figure 4. There is a minute velvety down on its surface, which is scarcely noticeable except to a close observer. The color is generally reddish-tawny or cinnamon. It is not always as dark as is indicated by the name.

The tubes are small and short. At first they are white, but they become yellowish as the plant matures.

The stem is short and not always straight. It is clothed and colored like the cap. Sometimes it tapers towards the top. When young it is soft and spongy in the center, but it becomes cavernous or hollow when old, as shown in figure 6. Its pale yellow spores are also a peculiar feature.

Some species of this genus quickly assume bluish tints where the substance is bruised or broken. The rule is sometimes given to avoid all such as poisonous. And yet one correspondent, an enthusiastic mycophagist, informs me that he eats such species, and has done so repeatedly without harm. In one instance however, which was brought to my notice, sickness and vomiting followed the eating of the sensitive boletus, *Boletus sensibilis*, a species which assumes a blue color in a remarkable manner where bruised, cut or broken. Even the pressure of the fingers in handling it causes it to assume blue spots where touched. All the family partaking of it were made sick, but all recovered.

Polyporus *Mich.*

In members of the genus *Polyporus* the stratum of pores is not smoothly or easily separable from the cap. Most of the species grow on dead or decaying wood and are too tough for food. A few grow on the ground, but even these are inclined to be tough. Very few of the wood-inhabiting species have a central stem and many have no stem at all. In some the texture is dry, hard, corky or woody, such as no one would think of eating, and of those classed as edible, it is generally better to select only the very young plants for food. My personal experience with these has not extended beyond the single species here described.

Polyporus sulphureus *Fr.*

SULPHURY POLYPORUS.

Plate 37. Figs. 1 to 4.

Pileus broad, somewhat irregular and wavy, growing in tufts and closely overlapping each other, uneven, reddish or orange color when young and fresh, fading with age, flesh white; tubes very small, short, sulphur yellow; spores elliptical, white, .0003 in. long.

The Sulphury polyporus is easily recognized by its clustered mode of growth and its attractive colors. The caps are often five or six inches broad and they closely overlap each other, sometimes forming tufts or clusters of considerable size. Generally the flesh is not more than half an inch thick, white and easily broken. When young it is soft and juicy, and in warm, moist weather it sometimes exudes a yellowish milk or juice if cut or broken. In maturity it is dry and almost friable. The color of the young cap is yellowish red or pale-orange, but the red or orange soon fades to yellow or becomes mingled with yellow. Its color is generally lost in drying. The margin of the growing cap is often beautifully yellow. It is more or less wavy or irregular.

The tubes are minute and short. They are of a bright sulphur-yellow color, which is more persistent than the red color of the cap.

There is no stem, but sometimes the cap is prolonged on one side into a stem-like base.

This species has a wide range and is found in all parts of our State. It grows in woods and in the open country. Its showy clusters are sometimes seen growing from dead spots in the trunks of living standing trees. It is perfectly at home on the dead wood of nearly all kinds of trees. Even fruit trees sometimes support it. It may appear at any time from June to September, but it delights in showery wet weather.

A variety sometimes occurs which might well be named variety *glomeratus*. In it a multitude of small caps are so closely and intimately united that their individuality is lost in the large mass which they form. Irregular and unequal holes or cavities in the general surface of the mass afford opportunity for a partial development of the pores of the imperfect caps. This variety is said to be more common in some of the western States than it is here.

In using the Sulphury polyporus for food, only the young and freshly grown caps were taken. These thinly sliced and fried in butter were much better than I had expected to find them. Mature specimens would probably be tough, dry, disagreeable and indigestible.

Fistulina *Bull.*

In the genus *Fistulina* the tubes stand close to each other, but are separate or distinct from each other and do not form a continuous compact mass as in *Boletus* and *Polyporus.* They are at first very short and resemble minute warts or papillæ, but they become cylindrical with age. We have only the single species here described.

Fistulina hepatica *Fr.*

LIVER FISTULINA.

Plate 37. Figs. 5 to 9.

Pileus fleshy, juicy, soft, dark-red, flesh red, variegated with brighter streaks; tubes small at first, yellowish or slightly tinged with pink, becoming dingy with age; spores elliptical, yellowish, .0002 to .00025 inch long.

The Liver fistulina has received various popular names in countries where its edible qualities are generally known. Among these are Oak tongue, Chestnut tongue, Beef tongue and Beefsteak fungus. Its cap when young is roughened on the upper surface with minute papillæ, which, with its shape and red color, are suggestive of the name Beef tongue. These papillæ disappear with age. In texture it is soft and juicy, but rather tough and somewhat fibrous. Its juice is reddish and the flesh is streaked with red. Its surface, when moist, is a little sticky or clammy to the touch. Generally there is a short lateral stem, but occasionally specimens are found without any stem.

The tubes are on the lower surface of the cap and quite small. At first they are like small pimples or papillæ, but they soon lengthen and become cylindrical. They are yellowish, more or less tinged with pink when young and fresh, but with age they assume a dingy, ochraceous hue which is almost indefinable.

The cap varies from two to six inches or more in breadth. It grows from old stumps of oak or chestnut in wet weather in July and August.

This Vegetable beefsteak or Beefsteak fungus has been highly commended by European writers. It has a slightly acid flavor, which is by no means disagreeable to some palates. Its toughness may be an objection with some, but it is not more tough than beefsteak. Some authors recommend only the young plant for food, but another says it is best when fully matured, the young fungus being somewhat bitter and astringent.

"It is good broiled with a steak and properly seasoned;" "if it is not beef itself, it is sauce for it;" "it is truly a vegetable beefsteak, for the taste resembles meat in a remarkable manner;" "no fungus yields a richer gravy, and, though rather tough when broiled, it is scarcely to be distinguished from broiled meat," are some of the expressions concerning the edible qualities of this fungus.

Hydneæ.

Hedgehog Mushrooms.

In the family Hydneæ, the cap, when present, has neither gills nor pores on its lower surface, but instead of these there are numerous spine-like or awl-shaped teeth projecting downwards. On the surface of these teeth the spores are developed. There are several genera in the family, in which these teeth are variously modified in shape and size, but as there are no edible species among them, they do not concern us now. Our edible species belong to the single genus *Hydnum*.

Hydnum *L.*

The distinct awl-shaped teeth or spines on the lower surface of the cap, when the cap is present, characterize this genus. In one edible species the cap is replaced by numerous branches, on whose inferior surface the teeth are developed. There are many species which are merely thin, effused membranous expansions, on whose surface the teeth are formed, but these furnish no edible species.

Teeth on the lower surface of a cap . . . . H. repandum.
Teeth on the lower surface of flattened branches . . . . H. coralloides.

Hydnum repandum *L.*

Spreading Hydnum.

Plate 38.

Pileus fleshy, fragile, convex or nearly plane, often irregular, nearly smooth, variable in color; spines pointed, whitish; stem stout, whitish or paler than the pileus, solid, often eccentric; spores globose, yellowish, .0003 in. broad.

The Spreading hydnum, or "hedge hog mushroom," figures 1 to 6, is not rare with us. Its cap is somewhat variable in color. It may be a pale-buff or rusty-yellow or pale-red or sienna-red. It is not often well formed and regular. The margin is apt to be wavy or lobed, and the stem attached to the cap a little to one side of the center. The substance is compact but easily broken. It is rather dry and whitish, but sometimes changes color slightly if cut or broken.

The spines or needles of the lower surface are about one-fourth of an inch long. They are whitish, often slightly tinted with yellow or pinkish.

The stem is mostly short, solid and stout, sometimes thickened at the base, sometimes at the top. It is commonly whitish, or at least paler than the cap.

Cap one to four inches broad, stem one to three inches long, one-half to three-fourths of an inch thick.

The Spreading hydnum grows in woods and in open places, either on naked soil or among grass or fallen leaves, either singly or in clusters. It appears from July to October.

The Reddish variety, Variety *rufescens* (*Hydnum rufescens* Pers.), figures 7 to 10, is smaller, thinner and more regular, with the stem mostly central. Its color is more red than in the typical form, and by some it is considered a distinct species. It is more common in woods. Its edible qualities are similar to those of the typical form.

According to Badham, the Spreading hydnum is as good as oysters, which it somewhat resembles in taste. Stevenson says it is one of the most delicious fungi, but that it requires about four hours slow cooking. Berkeley also pronounces it a most excellent fungus, but one that requires a little caution in its preparation for the table. One method of cooking it consists in first slicing the caps and steeping twenty minutes in warm water; then placing in a stew pan with butter, salt, pepper and beef gravy and simmering slowly for an hour. Cooke suggests that, owing to its slight pungency of flavor both raw and cooked, it may serve as a good substitute for mustard, and be placed with the meat in sandwiches. It may be dried and preserved for future use.

Hydnum coralloides *Scop.*

CORAL-LIKE HYDNUM.

Plate 24. Figs. 11 to 13.

Plant much branched, pure white, sometimes becoming yellowish with age; branches numerous, spreading, dense, angular or flattened, bearing the numerous crowded awl-shaped teeth along the lower side; spores globose, uninucleate, .0002 in. in diameter.

The Coral-like hydnum departs very decidedly from the usual form of the species of this genus, and is so unlike the others that it might easily be thought to belong to another genus, and, indeed, some French authors have included it in a separate genus *Drydon*. It is so white, and its branches and spines are so numerous and dense, that it has been compared to a cauliflower in its general appearance. Others have evidently thought it resembles some species of coral. The plant is generally from two to four inches high and nearly or quite as broad, but sometimes it attains much larger dimensions The stem is very short, dividing into branches almost at the base. The larger branches are more or less angular or compressed. The terminal ones are often curved upwards and terminate in a crowded, somewhat spreading, mass of spines. Generally the spines are closely arranged along the lower side of the spreading branches and point downward toward the earth. They vary from one sixth to one third of an inch in length. They are easily broken. The pure white color of the whole plant, when young and fresh, and the unusual appearance of the branches, densely and stiffly fringed by the pendulous spines, make this fungus a very noticeable and an attractive object. It is said that a desire to study fungi was first awakened in the illustrious Fries upon his beholding for the first time this beautiful species growing in the woods.

It occurs on prostrate trunks of trees of various kinds, but with us it seems to prefer the beech. It is quite common in hilly and mountainous woods in rainy weather. It appears from August to October.

In our botanical expeditions in the extensive wilderness of the Adirondack region we were often obliged to camp in the woods several nights in succession. On such occasions this beautiful fungus sometimes contributed a luxurious dish to our ordinarily very simple and, sometimes, very limited bill of fare. In such cases it proved as good as it was beautiful.

It is scarely possible to mistake any deleterious fungus for this, and it also has the advantage of generally being free from the attacks of insects and from dirt.

Thelephoreæ.

Cornucopia Mushrooms.

In the family Thelephoreæ the hymenium or spore-bearing surface is reduced to its utmost simplicity. It is a perfectly even surface of the hymenophore, or one rendered slightly uneven by obscure wrinkles or inconspicuous papillæ or granules. But few species have a distinct stem and cap. Probably no edible species will be found outside the genus *Craterellus.*

Craterellus *Fr.*

In the genus *Craterellus* the spore bearing surface is even or slightly rugose or wrinkled. The caps are generally thin and sometimes long and narrowly obconical or funnel-shaped. A single representative species is here described.

Craterellus cornucopioides *Pers.*

Cornucopia Craterellus.

Plate 24. Figs. 7 to 10.

Pileus thin, flexible, tubiform, hollow to the base, blackish-brown, sometimes a little scaly; hymenium even or somewhat rugose-wrinkled, cinereous; stem very short, almost wanting; spores elliptical, whitish, .0005 to .0007 in. long.

The Cornucopia craterellus, or "Horn of plenty," is more common than attractive. It is easily recognized by its elongated tubular or narrowly trumpet-shaped cap and its dingy-gray or sooty-brown hue. It takes its name from its peculiar shape. Its flesh is quite thin, a little tough, flexible and dry. The surface of the cap is smooth or but slightly roughened, with a few obscure fibrous tufts or scales. The color varies from grayish to a dark smoky-brown or sooty hue The margin is sometimes erect, sometimes widely spreading and decurved like the margin of a trumpet's mouth. It is often wavy, lobed, irregular, folded or overlapping, or split. The cavity of the cap extends to the very base.

The spore-bearing surface is commonly a little paler than the upper surface and varies from ashy-gray to pinkish-brown or dark smoky-brown. It is generally a little uneven or rugose-wrinkled. It extends nearly or quite to the ground, the stem being very short or almost wanting.

The cap is from two to four inches long and one to two and a half broad at the top. The plants grow gregariously or in tufts in woods and shaded places. It is found especially in old roads in woods on naked soil, or on shaded banks, but sometimes it grows among fallen leaves or mosses. It may be found from July to September.

Cordier and some other French writers class this fungus among the edible species, but say that it is not very popular because of its thin flesh and dark color. Dr. Cooke admits that his first trial of this fungus was so satisfactory that he never missed an opportunity afterwards of gathering them for the table, and he says that a friend who learned of the edible qualities of this fungus from him now thinks nothing of walking six or eight miles to procure a dish of this craterellus.

Clavarieæ.

FAIRY CLUBS.

In this family no definite cap is developed, and no definite inferior fertile surface. The plants are of upright growth, either simple or branched, and the spores are developed on the upper or exterior surface of the plant or of its branches. The edible species are found in the single genus *Clavaria*.

Clavaria *Vaill.*

In this genus the fleshy plant is either simple or branched. When simple it is commonly slightly thickened upward, assuming a shape similar to a club, a character which has suggested the generic name. In some of the branched species the branches are very numerous and crowded and the plants have an appearance strongly suggestive of a bush in miniature. The flesh in some species is very tender and fragile.

In collecting them for eating care must be exercised to select only sound specimens, for insect larvæ usually enter the plant at or near the base, so that the branches may appear sound while the larvæ are at work below. Disappointment in the flavor will result from the use of the sound branches of such plants, for their flavor is spoiled by the presence of the larvæ in the base of the plant. No dangerous species are known in this genus, but some have a disagreeable flavor.

Tips of the branches yellow	C. flava.
Tips of the branches red	C. botrytes.
Tips of the branches colored like the branches	C. cristata.

Clavaria flava *Schæff.*

Pale-yellow Clavaria.

Plate 39. Figs. 1 to 4.

Stem short, thick, white, much branched; branches terete, even, fastigiate, whitish or yellowish, the tips pale yellow; spores oblong-elliptical, yellowish, .0003 to .00045 inch long.

The Pale-yellow clavaria has a very thick but short, fleshy, white stem, which supports many smooth crowded branches. These divide and subdivide until the upper part of the plant is a dense mass of small branchlets, each one of which terminates in one to three blunt tooth-like points. The stem and branches are white or whitish, sometimes slightly tinged with yellowish hues, but the ultimate branchlets or points are a clear, pale yellow while young and fresh. When old the yellow tips are apt to fade, and then the whole plant is nearly uniformly colored. The flesh is white and its taste agreeable. The plants are from two to five inches high, and the mass of branches is nearly as broad. It grows in thin woods and open places, and may be found from July to September.

Vittadini says that this clavaria is less esteemed in Italy than the Red-tipped clavaria. Roques says it furnishes a healthful food and one easy of digestion, that it is commonly eaten in France and in great demand in Germany. My own experiments in eating it lead me to give it high commendation. Its flesh is tender and well flavored, and it seems to me nothing better could be desired by the mycophagist.

Clavaria botrytes *Pers.*

RED-TIPPED CLAVARIA.

Plate 39. Figs. 5 to 7.

Stem short, thick, fleshy, whitish, much branched; branches often somewhat rugose-wrinkled, repeatedly branched, the tips red; spores oblong-elliptical, .0005 to .0006 in. long.

The Red-tipped clavaria differs but little from the preceding species in size and structure, but is easily distinguished by the red tips of the branches. The color elsewhere may be whitish or yellow or pinkish. When old the tips sometimes fade, and then it is less easy to separate this species from the Pale yellow clavaria. The branches are sometimes longitudinally wrinkled. It grows in thin woods and open places, and may be found in wet weather in July, August and September. Nearly all mycologists agree in classing this among the edible species. They ascribe to it delicious qualities and an agreeable flavor. Unfortunately, it is not very common in our State.

Clavaria cristata *Pers.*

CRESTED CLAVARIA.

Plate 39. Figs. 8 to 12.

Stem rather slender, even, tenacious, stuffed, branched; branches dilated above, acutely incised or crested, the tips generally becoming brown with age; spores globose or broadly elliptical, white, .00025 to .0003 in. long.

The Crested clavaria is smaller than either of the two species already described, but it is much more abundant. It is not often more than two or two and a half inches high, but it often grows in tufts as broad as they are high. It varies in color, but is commonly white or whitish. Sometimes it has a dingy look as if it had been smoked. Again it is faintly tinged with dull pink or creamy-yellow. It is easily recognized by the peculiar tips of the branches. These are rather slender and acute or pointed, and sometimes so numerous as to give a crested appearance to the apically-flattened branch they terminate. When old they usually turn brown or blackish-brown at the tips. Unusual forms of the plant occur in which these acute terminal branchlets are wanting. The branches then end abruptly in a blunt point. Perhaps these forms are referable to *C. coralloides*, but that is described as having the tips of the branches acute.

The Crested clavaria grows in woods and in open places. It is especially common in the hilly and mountainous districts of the State. It loves cool, shaded and moist places, and grows on naked soil or among mosses and sphagnum. It usually grows in groups, sometimes in lines, and it is so plentiful that it is not difficult in some localities to gather enough for the table in a short time.

Poisonous and Unwholesome Fungi.

As has already been stated, the most dangerous fungi appear to belong to the single genus Amanita, and probably most of the fatal accidents from mushroom poisoning are due to two or three species. The characters of the genus need not be repeated here. The prominent distinctive features of the species here described are indicated in the brief tabular statement annexed.

	Cap warty, striate on the margin..................	A. muscaria.
	Cap not warty, even on the margin................	1
1	Remains of the membranous wrapper closely pressed to the base of the stem...........	A. verna.
1	Remains of the wrapper distant from the base of the stem.......................................	A. phalloides.

These plants are not ordinarily poisonous to handle, nor are they repulsive in taste or odor. They are clean and attractive in appearance, and the symptoms of poisoning that follow their use as food are slow in appearing.

On the other hand, those that are classed as unwholesome usually possess some character that may be taken as an indication of their unwholesomeness, though this is not always a sure guide to follow. Their toughness of texture, their nauseous and acrid taste, or their intolerable odor, will in most cases sound a note of warning.

A single species will here be illustrated and described as a representative of this class of fungi. It is the Bitter boletus, *Boletus felleus.*

Amanita muscaria *L.*

FLY AMANITA. FALSE ORANGE.

Plate 42.

Pileus warty, slightly striate on the margin; lamellæ white; stem annulate, bulbous-thickened at the base where it is more or less scaly from the fragments of the ruptured volva; spores broadly elliptical, white, .0003 to .0004 inch long.

The Fly amanita is our most common poisonous species. It is also very variable in size and in the color of its cap. It is generally a most showy and attractive plant. The cap is adorned with numerous white or yellowish warts, the remains of the upper part of the wrapper. It is more or less striated on its margin, but individuals sometimes occur in which the striations are very inconspicuous or even wholly wanting. The color is bright-red, scarlet or orange in the young plant, but this nearly always fades to yellow on the margin in the mature plant. In one variety the cap is wholly yellow, and in another it is white. The fading process often goes on until the orange and yellow hues are replaced by whitish ones. The warts of the cap are sometimes washed off by heavy rains, so that it is possible to find specimens of this species without warts. The flesh is white, but except in white forms it is yellowish just under the epidermis. The gills are white, or in some cases slightly tinged with yellow. The same remark applies to the stem. This is furnished with a collar and terminates in a bulb at the base. This bulb is not broad and abrupt above as in the Poison amanita, but is gradually narrowed into the stem so that it has a somewhat ovate form. It, as well as the base of the stem, is more or less scaly from the adhering fragments of the wrapper, the remains of which do not adhere in an entire membranous sheath as in the Orange amanita and Sheathed amanita. As in other species, the stem may be either stuffed or hollow.

Cap three to eight inches broad; stem four to six inches long; one-half an inch or more in thickness.

It grows both in woods and in open places and pastures. It occurs from June till the freezing weather of October or November.

Very diverse statements concerning the properties of this fungus have been recorded. While some have attributed to it edible qualities, others have asserted that it is a most active poison and has caused numerous accidents by being confused with the Orange amanita. It is said to have caused death even when eaten in small quantities, and again it is said to have been eaten in abundance without any evil result. According to Quelet, it acts as a cathartic if eaten in small quantity, but causes death if eaten freely. One of my own correspondents assures me that he has eaten of the yellow variety, var. *formosa*, Fig. 6, without evil results, and that he regards it as very good. But there is no disputing the fact that the species possesses intoxicating and poisonous properties. It has long had the reputation of possessing properties fatal to flies that sip its juice. This suggests the names *muscaria*, *Fly amanita*, *Fly agaric* and *Fly killer* by which it is known. I have myself seen the cap of a single specimen surrounded by a circle of lifeless flies that had sipped the viscid juice from its moist surface and fallen victims to its virulent properties before leaving the place of their fatal repast.

Some have attempted an explanation of the contradictory statements concerning this plant by supposing that its poisonous properties are not always developed, that in some localities or under some favorable circumstances it is harmless. This explanation violates our sense of the constancy of Nature, and is not at all satisfactory. In the case of my own correspondent, the caps were peeled before cooking. May it not be that much of the noxious quality resides in the epidermis and the viscid substance upon it, and that by discarding this the dish is rendered less dangerous? In some instances may it not be true that it was eaten in too limited quantity to produce evil consequences? In some cases it is said that those who eat it freely and without harm boil it a long time in water and throw away the water. In this way, doubtless, much of the poison is abstracted. Long soaking in salt and water, also in vinegar, have been recommended as a means of rendering suspected or noxious species harmless, and may have been practiced in some of the cases in which this fungus has been eaten with impunity.* Whatever may be the explanation of the contradictory statements, the only safe way is to consider this species as deleterious and avoid its use under all circumstances. There is no need of taking any risks with suspected species, since there are so many good ones against which no charge of evil has ever been established.

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* Since this was written another correspondent writes that he has eaten as many as four caps of the yellowish form of this species at one meal and without any evil consequences, and that the caps were not peeled. This makes pertinent the question, is this variety, indeed, a distinct and harmless species? It scarcely seems possible that the different experiences are explainable by reason of individual idiosyncrasy, or by variation in the properties of the plant.

It is said that some of the people of northern Asia make an intoxicating liquor of this fungus by steeping it in water.

Forms of this species occasionally occur which are wholly white or whitish. They are referable to Variety *alba*.

Amanita Frostiana, Frost's amanita, is found in more dense woods. It might easily be taken for a very small form of the Fly amanita. Its cap is only one or two inches broad, its gills and stem are often yellow, its collar is slight and often evanescent and the base of the stem is not scaly, the bulb being slightly margined by the remains of the wrapper.

Amanita verna *Bull.*

VERNAL AMANITA.

Plate 41. Figs. 4 to 7.

Pileus glabrous, even on the margin, white, viscid when moist; lamellæ white; stem annulate, white, floccose, stuffed or hollow, closely sheathed at the base by the remains of the membranous volva, bulbous; spores globose, .0003 inch broad.

The Vernal amanita scarcely differs from white forms of the Poison amanita except in the more persistent and more closely sheathing remains of the wrapper at the base of the stem. It is probably only a variety of that species, as most mycologists now regard it, and it should be considered quite as dangerous. I have not found it earlier than in July, although in Europe it is said to appear in spring, as its name implies.

Amanita phalloides *Fr.*

POISON AMANITA.

Plates 40 and 41. Figs 1 to 3

Pileus glabrous, even on the margin, white, greenish or brown; lamellæ white; stem annulate, abruptly bulbous at the base, the bulb slightly and loosely margined above by the remains of the volva; spores globose, white, .0003 in. broad.

The Poison amanita is very variable in the color of the cap, and yet is so definite in its structural characters that only the most careless observer would be likely to confuse it with any other species. There is, however, a sort of deceptive character about it. It is very neat and attractive in its appearance and "looks as if it might be good enough to eat." This appearance is fortified by the absence of any decidedly unpleasant odor or taste, but let him who would eat it beware, for probably there is not a more poisonous or dangerous species in our mycological flora. To eat it is to invite death.

The cap is wholly destitute of warts and of striations on its margin. It varies in color, from white to a dark smoky-brown. In the most common form it is white or a very pale greenish-yellow, as if it was white slightly tinged with yellow or greenish-yellow. I have never seen in it the decidedly green or olive-green colors which it appears often to have in Europe, and which are often indicated in figures of this species. There are two brown forms, one having the cap grayish-brown, as in figures 1 and 2, the other having it a dark smoky-brown, as shown in figures 3 to 5. The forms having a grayish or grayish-brown cap sometimes have the center of the cap darker colored or almost black. In Europe there is a white form with a black center to the cap.

The gills are persistently white. They are rather broad, rounded at the end next the stem and free from it.

The stem is white in the white-cap forms, but in those having a dark-brown cap it is usually tinged with brown, but is paler than the cap. The same is true of the collar. These dark-colored forms are more frequent in the cool woods of mountainous regions than elsewhere. When young the stem may be stuffed with a cottony pith, but it becomes hollow with age. The bulb at the base of the stem is an important character and should always be taken into consideration in the identification of the species. It is very abrupt, broad and distinct. Its breadth is often greater than its length. It is generally narrowly margined on the upper side by the remains of the wrapper. Sometimes this margin is reduced to a mere acute rim. It is distant from the stem, not closely pressed as in the Vernal amanita, and is frequently split or notched.

The cap is three to five inches broad, the stem three to six inches long and one-third to one-half an inch thick. The bulb is from one to one and a half inches broad.

The Poison amanita grows in woods, groves, open places and bushy pastures, and may be found from July to October. It is a common fungus.

I suspect that fatal cases of mushroom poisoning are especially attributable to the Vernal amanita and the white forms of the Poison amanita. But such accidents could only occur through ignorance or gross carelessness, for the distinction between these and the common mushroom is plain and unmistakable. It may be exhibited as follows:

Poison amanita. Gills *persistently white;* stem *equal to* or *longer* than the diameter of the cap, with a *broad distinct bulb* at the base.

Common mushroom. Gills *pink, becoming blackish-brown;* stem *shorter* than the diameter of the cap, with *no bulb* at the base.

From all forms of the edible Sheathed amanitopsis, the Poison amanita differs in its *distinctly bulbous* stem, in having a *collar* on the stem and in the *absence of striations* on the margin of the cap.

From the edible Reddish amanita, it is easily separated by the entire *absence* of any *reddish hues* or *stains* and of *warts* from its cap.

From the Smooth lepiota its distinct, *abrupt and margined* bulb at once distinguishes it.

Boletus felleus *Bull.*

BITTER BOLETUS.

Plate 43.

Pileus fleshy, convex above, glabrous or nearly so, grayish-brown, buff-brown, reddish-brown or tawny, flesh white, taste bitter; tubes long, convex in the mass in mature plants, at first whitish, becoming pale flesh color; stem equal or tapering upwards, usually reticulated at the top only, rarely wholly reticulated, commonly a little paler than the pileus; spores oblong-fusiform, pinkish, .0005 to .0007 inch long.

The Bitter boletus takes its name from the bitter flavor which its flesh persistently maintains. It is a common species, and one easily recognized by its reticulated stem and flesh colored tubes taken in connection with its bitter taste.

The cap is rather thick, dry and smooth, but quite variable in color. This is generally some shade of brown tinged with red or yellow. The flesh is white, but when cut or broken and exposed to the air it sometimes assumes a pinkish tint.

The mass of tubes is generally somewhat convex in the mature plant, though it may be plane in the young plant. This also sometimes assumes a pinkish stain where bruised.

The stem varies greatly in length and thickness, and is sometimes crooked and deformed. It is usually reticulated at the top only.

Cap one and a half to four inches broad; stem one to four inches long, one-third to two-thirds of an inch thick.

The Bitter boletus occurs in woods and in open places. A favorite place of growth is in a soil largely composed of decayed wood and other vegetable matter. It is frequently found growing about much-decayed stumps and prostrate trunks of hemlock trees. It may be found from July to September.

The taste of the flesh in this Boletus, as well as in many species of Lactarius and Russula, is an important aid in the specific identification. In tasting fungi for this purpose care should be taken to select only fresh, sound specimens, and the part tasted should not be swallowed.

LIST OF PLATES AND SPECIES.

[illegible]

Plate			
A	Diagrammatic representation of parts of mushrooms		
1		Lycoperdon giganteum *Batsch.*	Giant Puff-ball
2		L. cyathiforme *Bosc.*	Cup-shaped Puff-ball
3	Figs. 1 to 3	Morchella esculenta *Pers.*	Common Morel
	Figs. 4 to 7	M. deliciosa *Fr.*	Delicious Morel
	Figs. 8 to 10	M. bispora *Sor.*	Two-spored Morel
	Figs. 11 to 13	M. semilibera *DC.*	Half-free Morel
4	Figs. 1 to 4	M. conica *Pers.*	Conical Morel.
	Figs. 5 to 9	M. angusticeps *Peck.*	Narrow-cap Morel
5	Figs. 1 to 3	Gyromitra esculenta *Fr.*	Esculent Gyromitra Edible Helvella
	Figs. 4 to 7	Helvella crispa *Fr.*	White Helvella
	Figs. 8 to 14	Mitrula vitellina v. irregularis *Peck.*	Irregular Mitrula
6		Agaricus campester *L.*	Common Mushroom
7		A. subrufescens *Peck.*	Slightly reddish Mushroom
8		A. arvensis *Schæff.*	Field Mushroom Horse Mushroom
9	Figs. 1 to 6	A. Rodmani *Peck.*	Rodman's Mushroom
	Figs. 7 to 12	A. placomyces *Peck.*	Flat-cap Mushroom
10		Coprinus comatus *Fr*	Shaggy Coprinus
11	Figs. 1 to 6	C. micaceus *Fr.*	Glistening Coprinus
	Figs. 7 to 11	C. atramentarius *Fr.*	Inky Coprinus
12		Cortinarius violaceus *Fr.*	Violet Cortinarius
13	Figs. 1 to 6	C. collinitus *Fr.*	Smeared Cortinarius
	Figs. 7 to 14	C. cinnamomeus *Fr.*	Cinnamon Cortinarius
	Figs. 15 to 20	C. cinnamomeus v. semisanguineus *Fr.*	Half-red Cortinarius
14	Figs. 1 to 6	Clitopilus prunulus *Scop.*	Plum Clitopilus
	Figs. 7 to 11	C. orcella *Bull.*	Sweetbread Mushroom
	Figs. 12 to 21	Marasmius oreades *Fr.*	Fairy-ring Mushroom
15		Amanita cæsarea *Scop.*	Orange Amanita
16		A. rubescens *Fr.*	Reddish Amanita
17		Amanitopsis vaginata *Roze.*	Sheathed Amanitopsis
18		Lepiota procera *Scop.*	Parasol Mushroom Tall Lepiota
19		L. naucinoides *Peck.*	Smooth Lepiota
20		Armillaria mellea *Vahl.*	Honey-colored Armillaria

Plate			
21	Figs. 1 to 5	Tricholoma transmutans *Peck.*	Changing Tricholoma
	Figs. 6 to 11	T. imbricatum *Fr.*	Imbricated Tricholoma
22		T. personatum *Fr.*	Masked Tricholoma
23	Figs. 1 to 7	Clitocybe media *Peck.*	Intermediate Clitocybe
	Figs. 8 to 13	C. nebularis *Batsch.*	Clouded Clitocybe
24	Figs. 1 to 6	C. infundibuliformis *Schœff.*	Funnel-form Clitocybe
	Figs. 7 to 10	Craterellus cornucopioides *Pers.*	Cornucopia Craterellus
	Figs. 11 to 13	Hydnum coralloides *Scop.*	Coral-like Hydnum
25		Clitocybe laccata *Scop.*	Laccate Clitocybe
26	Figs. 1 to 4	Pleurotus ulmarius *Bull.*	Elm Pleurotus
	Figs. 5 to 9	P. ostreatus *Fr.*	Oyster Pleurotus Oyster Mushroom
27		P. sapidus *Kalchb.*	Sapid Pleurotus
28	Figs. 1 to 10	Hygrophorus miniatus *Fr.*	Vermilion Hygrophorus
	Figs. 11 to 17	H. pratensis *Fr.*	Meadow Hygrophorus
	Figs. 18 to 23	Paxillus involutus *Fr.*	Involute Paxillus
29		Lactarius deliciosus *Fr.*	Delicious Lactarius
30		L. volemus *Fr.*	Orange Lactarius Orange-brown Lactarius
31		Russula virescens *Fr.*	Greenish Russula
32		Cantharellus cibarius *Fr.*	Chantarelle
33	Figs. 1 to 6	Boletus subluteus *Peck.*	Small yellowish Boletus
	Figs. 7 to 12	B. luteus *L.*	Yellow-brown Boletus
34	Figs. 1 to 5	B. granulatus *L.*	Granulated Boletus
	Figs. 6 to 10	B. versipellis *Fr.*	Orange-cap Boletus
35		B. scaber *Fr.*	Rough-stemmed Boletus
36	Figs. 1 to 7	B. castaneus *Bull.*	Chestnut Boletus
	Figs. 8 to 12	B. edulis *Bull.*	Edible Boletus
37	Figs. 1 to 4	Polyporus sulphureus *Fr.*	Sulphury Polyporus
	Figs. 5 to 9	Fistulina hepatica *Fr.*	Liver Fistulina
38		Hydnum repandum *L.*	Spreading Hydnum
39	Figs. 1 to 4	Clavaria flava *Schœff.*	Pale-yellow Clavaria
	Figs. 5 to 7	C. botrytes *Pers.*	Red-tipped Clavaria
	Figs. 8 to 12	C. cristata *Pers.*	Crested Clavaria
40		Amanita phalloides *Fr.*	Poison Amanita
41	Figs. 1 to 3	A. phalloides *Fr.*	Poison Amanita (Whitish)
	Figs. 4 to 7	A. verna *Bull.*	Vernal Amanita
42		A. muscaria *L.*	Fly Amanita
43		Boletus felleus *Bull.*	Bitter Boletus

EXPLANATION OF PLATE A.

Fig. 1 An Amanita; *c* the *pileus* or cap; *m* the striated margin of the cap; *g* the *lamellœ* or gills; *a* the *annulus*, ring or collar; *s* the stem; *v* the *volva* or wrapper; *mc* the *mycelium* or spawn.

Fig. 2 A Boletus; *c* the cap; *p* the tubes or pores; *a* the collar; *s* the stem; *mc* the *mycelium*.

Fig. 3 A Hydnum; *c* the cap; *t* the *aculei* or teeth; *s* the stem; *m* the *mycelium.*

Figs. 4 to 8 Vertical sections of caps and the upper part of their stems showing the relations of gills to stems.

Fig. 4 Gills free from the stem; stem hollow.

Fig. 5 Gills adnexed; stem stuffed.

Fig. 6 Gills adnate; stem solid.

Fig. 7 Gills emarginate, also adnate and having a decurrent tooth.

Fig. 8 Gills decurrent.

Fig. 9 A plant with its cap umbonate, also squamose, and its stem bulbous.

Fig. 10 A plant with its cap umbilicate, its gills decurrent and its stem equal.

Fig. 11 A basidium with its four spores.

Fig. 12 An ascus containing eight spores.

PLATE 1.

LYCOPERDON GIGANTEUM *Batsch.*

Giant Puff-ball.

Fig. 1 An immature plant; about one-half the natural size.

" 2 A mature plant with its rind above breaking into fragments, falling away and exposing the dusty mass of spores; about half the natural size.

" 3 Two fragments of filaments from the spore mass, magnified about 400 diameters.

" 4 Several spores, × 400.

PLATE 2.

LYCOPERDON CYATHIFORME *Bosc.*

Cup-shaped Puff-ball.

Fig. 1 An immature plant.

" 2 A full-grown plant with even surface.

" 3 A full-grown plant with the surface cracked into areas or broad spot-like scales.

" 4 A mature plant with the upper part of the rind breaking into fragments, falling away and exposing the purplish spore mass.

" 5 The ragged cup-shaped base of an old plant after the upper part of the rind and the spore mass have been dispersed.

" 6 Vertical section through an immature plant.

" 7 Two fragments of filaments from the spore mass, × 400.

" 8 Seven spores, × 400.

PLATE 3.

MORCHELLA ESCULENTA *Pers.*

Common Morel.

Fig. 1 A mature plant.

" 2 Vertical section through the center of a mature plant.

" 3 A spore sack containing eight spores, × 400.

MORCHELLA DELICIOSA *Fr.*

Delicious Morel.

Figs. 4 and 5 Mature plants, two forms.
" 6 Vertical section through the center of a mature plant.
" 7 A spore sack containing eight spores, × 400.

MORCHELLA BISPORA *Sor.*

Two-spored Morel.

Fig. 8 A mature plant.
" 9 Vertical section through the center of a mature plant.
" 10 A spore sack containing two spores, × 400.

MORCHELLA SEMILIBERA *DC.*

Half-free Morel.

Fig. 11 A mature plant.
" 12 Vertical section through the center of a mature plant.
" 13 A spore sack containing eight spores, × 400.

PLATE 4.

MORCHELLA CONICA *Pers.*

Conical Morel.

Figs. 1 and 2 Mature plants.
" 3 Vertical section through the center of a mature plant.
" 4 A spore sack containing eight spores, × 400.

MORCHELLA ANGUSTICEPS *Peck.*

Narrow-cap Morel.

Figs. 5, 6 and 7 Mature plants of various forms.
" 8 Vertical section through the center of a mature plant.
" 9 A spore sack containing eight spores, × 400.

PLATE 5.

GYROMITRA ESCULENTA *Fr.*

Esculent Gyromitra. Edible Helvella.

Fig. 1 A mature plant.
" 2 Vertical section through the center of a mature plant.
" 3 A spore sack containing eight spores, × 400.

HELVELLA CRISPA *Fr.*

Figs. 4, 5 and 6 Mature plants of various forms.
" 7 A spore sack containing eight spores, × 400.

MITRULA VITELLINA *Sacc.* var. IRREGULARIS *Peck.*

Irregular Mitrula.

Figs. 8 to 13 Mature plants of various forms.
" 14 A spore sack containing eight spores, × 400.

PLATE 6.

AGARICUS CAMPESTER *L.*

Common Mushroom.

Fig. 1 A cluster of three young plants, in one of which the veil has just separated from the margin of the cap, thereby revealing the gills.
" 2 and 3 Plants with their caps partly expanded and their gills yet pink-colored.
" 4 A mature plant with its cap fully expanded and its gills blackish-brown
" 5 Vertical section of the cap and upper part of the stem of an immature plant.
" 6 Vertical section of the cap and upper part of the stem of a mature plant.
" 7 Four spores, × 400.

VARIETY HORTENSIS.

Fig. 8 An immature plant.
" 9 A mature plant.
" 10 Four spores, × 400.

PLATE 7.

AGARICUS SUBRUFESCENS *Peck.*

Slightly Reddish Mushroom.

Fig. 1 A young plant whose veil has just separated from the margin of the cap, revealing the whitish color of the gills.
" 2 A cluster of four plants, two young, and two older ones with the caps partly expanded and the gills yet of a pinkish hue.
" 3 A single plant approaching maturity.
" 4 A mature plant whose gills have assumed the blackish-brown color
" 5 Vertical section of the cap and upper part of the stem of a young plant.
" 6 Vertical section of the cap and upper part of the stem of a middle-aged plant.
" 7 Vertical section of the cap and upper part of the stem of a mature plant.
" 8 Four spores, × 400.
" 9 Branching strings of mycelium.

PLATE 8.

AGARICUS ARVENSIS *Schæff.*

Field Mushroom. Horse Mushroom.

Fig 1 A young plant with the veil just separated from the margin of the cap.
" 2 A plant with the cap partly expanded, showing the dingy pinkish hue of the gills.

Fig. 3 A mature plant with the cap fully expanded and the gills of a blackish-brown color.
" 4 Vertical section of the cap and the upper part of the stem of a young plant.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

PLATE 9.

Agaricus Rodmani *Peck.*

Rodman's Mushroom.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded, showing the pinkish color of the gills.
" 3 A mature plant with the cap fully expanded.
" 4 Vertical section of the cap and upper part of the stem of an immature plant.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

Agaricus placomyces *Peck.*

Flat-cap Mushroom.

Fig. 7 A young plant with the veil just separated from the margin of the cap.
" 8 A plant with the cap partly expanded.
" 9 A mature plant with the cap fully expanded.
" 10 Vertical section of the cap and upper part of the stem of an immature plant.
" 11 Vertical section of the cap and upper part of the stem of a mature plant.
" 12 Four spores, × 400.

PLATE 10.

Coprinus comatus *Fr.*

Shaggy Coprinus

Fig. 1 A young plant.
" 2 and 3 Immature plants with the cap beginning to split on the margin and the gills beginning to assume the pinkish and blackish hues.
" 4 A mature plant with the margin of the cap much split and recurved and the gills blackened, deliquescing and dripping with an inky fluid.
" 5 Vertical section of the cap and upper part of the stem of a young plant.
" 6 Vertical section of the cap and upper part of the stem of a plant approaching maturity.
" 7 Four spores, × 400.

PLATE 11.

Coprinus micaceus *Fr.*

Glistening Coprinus.

Fig. 1 A cluster of seven immature plants.
" 2 A mature plant showing the blackened gills.
" 3 A mature plant with the margin of the cap split and somewhat recurved.
" 4 Vertical section of the cap and upper part of the stem of an immature plant.
" 5 Vertical section of the cap and upper part of the stem of a mature plant, the blackened deliquescing gills dripping with an inky fluid.
" 6 Four spores, × 400.

Coprinus atramentarius *Fr.*

Inky Coprinus.

Fig. 7 A cluster of four plants, one of them young.
" 8 A mature plant.
" 9 Vertical section of the cap and upper part of the stem of an immature plant.
" 10 Vertical section of the cap and upper part of the stem of a mature plant, showing the blackened dripping gills.
" 11 Four spores, × 400.

PLATE 12.

Cortinarius violaceus *Fr.*

Violet Cortinarius.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 A plant with the cap partly expanded, showing the color of the gills.
" 4 A plant with the cap fully expanded.
" 5 Vertical section of a cap and the upper part of the stem of an immature plant.
" 6 Vertical section of the cap and upper part of the stem of a mature plant.
" 7 Four spores, × 400.

PLATE 13.

Cortinarius collinitus *Fr.*

Smeared Cortinarius.

Fig. 1 A young plant showing the webby veil.
" 2 and 3 Immature plants showing the color of the young gills
" 4 A mature plant with the cap fully expanded.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

CORTINARIUS CINNAMOMEUS *Fr.*

Cinnamon Cortinarius.

Fig. 7 A young plant showing the webby veil.
" 8, 9 and 10 Immature plants showing the color of the young gills.
" 11 and 12 Mature plants showing the color of the mature gills.
" 13 Vertical section of the cap and upper part of the stem of a mature plant.
" 14 Four spores, × 400.

Variety SEMISANGUINEUS *Fr.*

Half-red Cortinarius.

Fig. 15 A young plant showing the webby veil.
" 16 and 17 Immature plants showing the color of the young gills.
" 18 A mature plant showing the color of the mature gills.
" 19 Vertical section of the cap and upper part of the stem of a matured plant.
" 20 Four spores, × 400.

PLATE 14.

CLITOPILUS PRUNULUS *Scop.*

Plum Clitopilus

Fig. 1 A young plant.
" 2 and 3 Mature plants, one having the margin of the cap wavy or irregular.
" 4 Vertical section of the cap and upper part of the stem of a young plant.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

CLITOPILUS ORCELLA *Bull.*

Sweet-bread Mushroom.

Fig. 7 A young plant.
" 8 and 9 Mature plants.
" 10 Vertical section of the cap and upper part of the stem of a mature plant.
" 11 Four spores, × 400.

MARASMIUS OREADES *Fr.*

Fairy-ring Mushroom.

Fig. 12 A plant showing slight striations on the margin of the cap.
" 12, 13, 14 and 15 Plants showing the usual color when fresh and moist.
" 16 and 17 Plants showing the usual color after the evaporation of the moisture.
" 18, 19 and 20 Vertical sections of the caps and upper part of the stems of three plants of different forms or stages of development.
" 21 Four spores, × 400.

PLATE 15.

AMANITA CÆSAREA *Scop.*

Orange Amanita.

Figs. 1 and 2 Two young plants just emerged from the wrapper.
" 3 and 4 Immature plants with the caps partly expanded.
" 5 A mature plant with the cap fully expanded and its margin faded to a yellow color.
" 6 Vertical section of a cap and the upper part of its stem showing the color of the flesh and gills and the cavity in the stem.
" 7 Four spores, × 400.

PLATE 16.

AMANITA RUBESCENS *Fr.*

Reddish Amanita.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 A plant with the cap fully expanded and with reddish stains on the gills indicating places where they have been bruised or wounded.
" 4 Vertical section of a cap and the upper part of its stem.
" 5 A plant from whose cap the warts have disappeared.
" 6 A plant from whose cap the warts have mostly disappeared and on the margin of which are slight striations.
" 7 Vertical section through the center of a plant.
" 8 Four spores, × 400.

PLATE 17.

AMANITOPSIS VAGINATA *Roze.*

Sheathed Amanitopsis.

Variety FULVA (*Shæff.*)

Fig. 1 A young plant.
" 2 and 3 Plants with the cap partly expanded, one having an umbo on the cap and the tawny tint to the wrapper.
" 4 A plant with the cap fully expanded and darker colored in the center.

Variety LIVIDA (*Pers.*)

" 5 A young plant with two fragments of the wrapper adhering to the cap.
" 6 A plant with the cap partly expanded.
" 7 A plant with an umbonate cap fully expanded.
" 8 Vertical section of a cap and the upper part of its stem.
" 9 Four spores, × 400.

PLATE 18.

LEPIOTA PROCERA *Scop.*

Parasol Mushroom. Tall Lepiota.

Fig. 1 A young plant.
" 2 A mature plant.
3 A smaller mature plant with unspotted stem.
4 Vertical section of a cap and the upper part of its stem.
5 Four spores, × 400.

PLATE 19.

LEPIOTA NAUCINOIDES *Peck.*

Smooth Lepiota.

Fig. 1 A young plant.
" 2 and 3 Plants with the cap partly expanded.
" 4 A plant with the central part of the cap tinged with yellow.
" 5 A plant with the cap fully expanded and centrally tinged with a smoky-brown hue.
" 6 Vertical section of a cap and the upper part of its stem.
" 7 Four spores, × 400.

PLATE 20.

ARMILLARIA MELLEA *Vahl.*

Honey-colored Armillaria.

Fig. 1 A young plant growing on decaying wood.
" 2 A cluster of five plants, one of them quite young and having its gills concealed by the veil.
" 3 A mature plant with the cap striated on the margin and centrally darker colored.
" 4 A mature plant with the cap brown and striated on the margin.
" 5 Vertical section of a cap and the upper part of its stem.
" 6 Four spores, × 400.

Variety GLABRA *Gill.*

Fig. 7 A plant with the cap glabrous and yellowish.
" 8 Vertical section of the cap and upper part of the stem of a mature plant.

PLATE 21.

TRICHOLOMA TRANSMUTANS *Peck.*

Changing Tricholoma.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 A cluster of two young plants and one mature plant, the latter showing the gills spotted with reddish-brown.
" 4 Vertical section of a cap and the upper part of its stem.
" 5 Four spores, × 400.

TRICHOLOMA IMBRICATUM *Fr.*

Imbricated Tricholoma.

Fig. 6 A young plant.
" 7 A plant with the cap partly expanded.
" 8 A mature plant showing spots on the gills.
" 9 Vertical section of the cap and upper part of the stem of a young plant.
" 10 Vertical section of the cap and upper part of the stem of a mature plant.
" 11 Four spores, × 400.

PLATE 22.

TRICHOLOMA PERSONATUM *Fr.*

Masked Tricholoma.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 A plant with the cap fully expanded.
" 4 Vertical section of the cap and upper part of the stem of a young plant.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

Variety BULBOSUM *Peck.*

Fig. 7 A plant with the cap partly expanded.
" 8 A plant with the cap fully expanded.

PLATE 23.

CLITOCYBE MEDIA *Peck.*

Intermediate Clitocybe.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 and 4 Mature plants.
" 5 Vertical section of the cap and upper part of the stem of an immature plant.
" 6 Vertical section of the cap and upper part of the stem of a mature plant.
" 7 Four spores, × 400.

CLITOCYBE NEBULARIS *Batsch.*

Clouded Clitocybe.

Fig. 8 A young plant.
" 9 An immature plant.
" 10 A mature plant.
" 11 Vertical section of the cap and upper part of the stem of an immature plant.
" 12 Vertical section of the cap and stem of a mature plant.
" 13 Four spores, × 400.

PLATE 24.

CLITOCYBE INFUNDIBULIFORMIS *Schaeff.*

Funnel-form Clitocybe.

Fig. 1 A young plant.
" 2 and 3 Mature plants, one showing more fully the upper surface of the cap.
" 4 A mature plant with a wavy margin to the cap.
" 5 Vertical section through the center of a mature plant.
" 6 Four spores, × 400.

CRATERELLUS CORNUCOPIOIDES *Pers.*

Cornucopia Craterellus.

Fig. 7 A cluster of three plants of different degrees of development.
" 8 A single mature plant.
" 9 Vertical section of a small plant.
" 10 Four spores, × 400.

HYDNUM CORALLOIDES *Scop.*

Coral-like Hydnum.

Fig. 11 A plant growing from a piece of wood.
" 12 A branch with its branchlets and spines.
" 13 Four spores, × 400.

PLATE 25.

CLITOCYBE LACCATA *Scop.*

Laccate Clitocybe.

Figs. 1, 2 and 3 Plants showing the usual color when fresh and moist.
" 4 and 5 Plants showing the paler color of the caps when dry.
" 6 and 7 Vertical section of the cap and upper part of the stems of two plants of different form.
" 8 Four spores, × 400.
" 9 and 10 Two plants of a larger form, their caps yet fresh and moist.
" 11 A plant from whose cap the moisture has evaporated.
" 12 Vertical section of a cap and the upper part of its stem.
" 13 Four spores, × 400.

Variety STRIATULA *Peck.*

Figs. 14, 15 and 16 Three plants whose caps are yet moist and show the marginal striations.
" 17 A plant whose cap is dry and paler.
" 18 Four spores, × 400.

Variety PALLIDIFOLIA *Peck.*

Figs. 19 and 20 Plants whose caps are yet moist.
" 21 A plant whose cap is dry and paler.
" 22 Vertical section of a cap and the upper part of its stem.

Variety AMETHYSTINA *Bolt.*

Figs. 23, 24 and 25 Three plants with their caps yet fresh and moist.
" 26 A plant whose cap is dry and paler.
" 27 Four spores, × 400.

PLATE 26.

PLEUROTUS ULMARIUS *Bull.*

Elm Pleurotus.

Fig. 1 An immature plant.
" 2 A mature plant showing the central coloration and spotting sometimes seen on the cap.

Fig. 3 Vertical section of the cap and upper part of the stem of a mature plant.

“ 4 Four spores, × 400.

PLEUROTUS OSTREATUS *Fr.*

Oyster Pleurotus.

Fig. 5 A cluster of plants growing from decaying wood.

“ 6 A plant showing the upper surface of the cap.

“ 7 A plant showing the lower surface of the cap.

“ 8 Vertical section of a plant.

“ 9 Four spores, × 400.

PLATE 27.

PLEUROTUS SAPIDUS *Kalchb.*

Sapid Pleurotus.

Fig. 1 A cluster of three plants growing from decaying wood.

“ 2 A cluster of four plants branching from a common base.

“ 3 A plant of reddish-brown color showing the upper surface of the cap

“ 4 A plant showing the lower surface of the cap.

“ 5 A small pale plant with a lateral stem, the upper surface shown

“ 6 Vertical section of a plant.

“ 7 Vertical section of a cluster of three plants.

“ 8 Four spores, × 400.

“ 9 Color of the spores as seen in a mass on white paper.

PLATE 28.

HYGROPHORUS MINIATUS *Fr.*

Vermilion Hygrophorus.

Fig. 1 A young plant.

“ 2, 3 and 4 Various forms of mature plants.

“ 5 A cluster of four plants

“ 6 Vertical section of the cap and upper part of the stem of a small plant.

“ 7 Vertical section of the cap and upper part of the stem of a larger plant with a hollow stem.

“ 8 Four spores, × 400.

Variety LUTESCENS *Peck.*

Fig. 9 A young plant.

“ 10 A mature plant.

HYGROPHORUS PRATENSIS *Fr.*

Meadow Hygrophorus.

Fig. 11 A young plant.

“ 12, 13 and 14 Forms of mature plants.

“ 15 and 16 Vertical sections of different forms of mature plants

“ 17 Four spores, × 400.

PAXILLUS INVOLUTUS *Fr.*

Involute Paxillus.

Fig. 18 A young plant.
" 19 An immature plant showing the involute margin of the cap.
" 20 A mature plant showing spots on the stem and gills where they have been bruised.
" 21 A plant with an eccentric stem.
" 22 Vertical section through the center of a plant.
" 23 Four spores, × 400.

PLATE 29.

LACTARIUS DELICIOSUS *Fr.*

Delicious Lactarius.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 A plant with the cap fully expanded and somewhat funnel-shaped, the gills wounded at 3a.
" 4 An old plant faded and tinged with green.
" 5 Part of a vertical section through the center of the cap and upper part of the stem of a mature plant, showing the orange-colored juice oozing from a wound in the gill at 5a.
" 6 Four spores, × 400.

PLATE 30.

LACTARIUS VOLEMUS *Fr.*

Orange Lactarius.

Fig. 1 A young plant.
" 2 A plant having a small umbo in the center of the cap.
" 3 A plant with a broadly convex cap.
" 4 A plant with the cap somewhat funnel-shaped.
" 5 A large plant with the cap broadly funnel-shaped, and the gills wounded, discolored and dripping the white milk at 5a.
" 6 A plant with the margin of the cap corrugated or wrinkled on its surface.
" 7 Vertical section of the cap and upper part of the stem of a small plant, a drop of the white juice issuing from a wound in the gill at 7a.
" 8 Four spores, × 400.

PLATE 31.

RUSSULA VIRESCENS *Fr.*

Greenish Russula.

Fig. 1 A young plant.
" 2 A plant with the cap partly expanded.
" 3 and 4 Two plants with the caps slightly striate on the margin, one mature and the cap fully expanded.
" 5 A mature plant with the cap fully expanded, split in two places on the margin and yellowish-green in the center.
" 6 Vertical section of the cap and upper part of the stem of a plant whose cap is convex.
" 7 Vertical section of the cap and upper part of the stem of a plant whose cap is centrally depressed.
" 8 Four spores, × 400.

PLATE 32.

CANTHARELLUS CIBARIUS *Fr.*

Chantarelle.

Figs. 1, 2, 3, 4 and 5 Plants of various sizes and shapes.
" 6 A plant with the margin of the cap wavy.
" 7 A stout plant with the cap somewhat funnel-shaped.
" 8 Vertical section through the center of a plant.
" 9 Four spores, × 400.

PLATE 33.

BOLETUS SUBLUTEUS *Peck.*

Small yellowish Boletus.

Fig. 1 A young plant with the tubes or hymenium yet concealed by the veil.
" 2 An immature plant showing the yellow color of the tubes.
" 3 and 4 Mature plants showing the ochraceous color of the tubes.
" 5 Vertical section of the cap and upper part of the stem of a mature plant.
" 6 Four spores, × 400.

BOLETUS LUTEUS *L.*

Yellowish-brown Boletus.

Fig. 7 A young plant with the tubes yet concealed by the veil.
" 8 A plant whose veil has just separated from the margin of the cap.
" 9 and 10 Mature plants.
" 11 Vertical section of the cap and upper part of the stem of a mature plant.
" 12 Four spores, × 400.

PLATE 34.

BOLETUS GRANULATUS *L.*

Granulated Boletus.

Fig. 1 A young plant.
" 2 and 3 Mature plants differing in the shape and color of the caps.
" 4 Vertical section of the cap and upper part of the stem of a mature plant.
" 5 Four spores, × 400.

BOLETUS VERSIPELLIS *Fr.*

Orange-cap Boletus.

Fig. 6 A young plant.
" 7 A plant with the dots on the stem of the same color as the cap.
" 8 A plant with the dots on the stem of different colors.
" 9 Vertical section of the cap and upper part of the stem of a mature plant.
" 10 Four spores, × 400.

PLATE 35.

BOLETUS SCABER *Fr.*

Rough-stemmed Boletus.

Figs. 1 and 2 Young plants with differently colored caps.
" 3 A plant with a white cap.
" 4 A mature plant having a reddish cap.

Fig. 5 An immature plant having an ash-colored cap.
" 6 A mature plant with a blackish-brown cap.
" 7 A plant with a brown cap.
" 8 Vertical section of the cap and upper part of the stem of a plant.
" 9 Four spores, × 400.

PLATE 36.

BOLETUS CASTANEUS *Bull.*

Chestnut Boletus.

Fig. 1 A young plant showing the whitish tubes.
" 2 and 3 Mature plants.
" 4 A mature plant with the margin of the cap slightly curved upwards.
" 5 Vertical section through the center of a young plant.
" 6 Vertical section through the center of a mature plant.
" 7 Four spores, × 400.

BOLETUS EDULIS *Bull.*

Edible Boletus.

Fig. 8 A young plant showing the white tubes.
" 9 A mature plant of small size.
" 10 A mature plant of medium size.
" 11 Vertical section of the cap and upper part of the stem of a mature plant.
" 12 Four spores, × 400.

PLATE 37.

POLYPORUS SULPHUREUS *Fr.*

Sulphury Polyporus.

Fig. 1 A cluster of four plants growing from decaying wood.
" 2 A single plant showing the upper surface of the cap and the yellow freshly grown margin.
" 3 Vertical section of a plant.
" 4 Four spores, × 400.

FISTULINA HEPATICA *Fr.*

Liver Fistulina.

Fig. 5 A plant showing the upper surface of the cap.
" 6 A plant showing the lower surface of the cap.
" 7 Lateral view of a plant growing from decayed wood.
" 8 Vertical section of a plant showing reddish streaks in the flesh.
" 9 Four spores, × 400.

PLATE 38.

HYDNUM REPANDUM *L.*

Spreading Hydnum.

Figs. 1 and 3 Plants whose caps are of a pale color.
" 2 and 4 Plants whose caps are of a reddish color.
" 5 Vertical section of the cap and upper part of the stem of a plant.
" 6 Four spores, × 400.

Variety RUFESCENS (*Pers.*)

Fig. 7 A plant whose cap is somewhat wavy on the margin.
" 8 A plant whose cap is more regular.
" 9 Vertical section of the cap and upper part of the stem of a plant.
" 10 Four spores, × 400.

PLATE 39.

CLAVARIA FLAVA *Schaeff.*

Pale-yellow Clavaria.

Fig. 1 A young plant.
" 2 A full-grown plant.
" 3 One of the principal branches with its branchlets.
" 4 Four spores, × 400.

CLAVARIA BOTRYTES *Pers.*

Red-tipped Clavaria.

Fig. 5 A young plant.
" 6 A full-grown plant.
" 7 Four spores, × 400.

CLAVARIA CRISTATA *Pers.*

Crested Clavaria.

Figs. 8 and 9 Plants with few branches.
" 10 A plant with many branches and a dingy whitish color.
" 11 A mature plant in which the tips of the branches have assumed a brown color.
" 12 Four spores, × 400.

PLATE 40.

AMANITA PHALLOIDES *Fr.*

Poison Amanita.

Fig. 1 A young plant with the cap slightly expanded, and of a grayish brown color.
" 2 A mature plant with the grayish-brown cap fully expanded and blackish-brown in the center.
" 3 A very young plant just bursting from its wrapper, two fragments of which still adhere to the cap.
" 4 A plant with its blackish-brown cap partly expanded.
" 5 A mature plant with its blackish-brown cap fully expanded.
" 6 Vertical section through the center of an immature plant.
" 7 Vertical section of the cap and upper part of the stem of a mature plant.
" 8 Four spores, × 400.

PLATE 41.

AMANITA PHALLOIDES *Fr.*

Poison Amanita.

Fig. 1 A plant with its whitish cap partly expanded.
" 2 A plant with its whitish cap fully expanded.
" 3 Vertical section through the center of a mature plant.

AMANITA VERNA *Fr.*

Vernal Amanita.

Fig. 4 A young plant just emerging from its wrapper.
" 5 An immature plant with the cap slightly expanded.
" 6 A mature plant with the cap fully expanded.
" 7 Four spores, × 400.

PLATE 42.

AMANITA MUSCARIA *L.*

Fly Amanita.

Fig. 1 A young plant just breaking from its wrapper.
" 2 A plant with its red cap partly expanded.
" 3 A mature plant with its cap fully expanded and faded to yellow on the striated margin.
" 4 Vertical section of a part of the cap and upper part of the stem of a mature plant.
" 5 Four spores, × 400.

Variety FORMOSA *Fr.*

Fig. 6 A plant with its yellow cap partly expanded.

PLATE 43.

BOLETUS FELLEUS *Bull.*

Bitter Boletus.

Fig. 1 A young plant.
" 2 A young plant showing the color of the young tubes.
" 3 and 4 Mature plants with stems of different shapes.
" 5 A mature plant with the stem reticulated to the base.
" 6 Vertical section of the cap and upper part of the stem of a mature plant.
" 7 Four spores, × 400.

CORRECTIONS OF PLATES.*

PLATE 1.

Fig. 2. The exposed inner substance shown in the upper part of the figure is too black; it should be dingy-olivaceous.

PLATE 6.

Figs. 7, 10. The spores should be brown, not pink.

PLATE 8.

Fig. 5. The gills should be blackish-brown, as in figure 3.
Fig. 6. The spores should be brown, not pink.

PLATE 13.

Figs. 2, 3. The gills should have no pink tint.
Figs. 7 to 12. There should be no stripes on the caps.

PLATE 14.

Fig. 21. The spores should be white.

PLATE 17.

Fig. 9. The spores should be white.

PLATE 19.

Fig. 7. The spores should be white.

PLATE 24.

Figs. 1, 2, 3, 4. The upper surface of the cap is too pale.
Under the name CLITOCYBE INFUNDIBULIFORMIS insert FUNNEL-FORM CLITOCYBE.

PLATE 28.

Figs. 8, 17. The spores should be white, not pink.

PLATE 29.

Fig. 4. The upper surface of the cap should have a dull greenish tint.

PLATE 30.

Fig. 8. The spores should be white.

---

* The failure of the artist to follow the copy and [illegible] corrections.

PLATE 34.

Fig. 10. The spores should be brown, not pink.

PLATE 35.

Fig. 2. The stem should be dotted as in the other figures.

Figs. 3, 4, 5, 6, 8, 9. The tubes and spores should have no pink hues. For the name SOABER read SCABER.

PLATE 36.

Fig. 4. The lower surface of the cap should be yellowish.

Fig. 7. The spores should be yellowish, not pink.

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(Synonyms are in *italics.*)

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